

# ARIZONA MEDICINE

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# ARIZONA MEDICINE

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## Original ARTICLES

### COCCIDIOIDOMYCOSIS

Notes on Ecologic and Endemiologic Factors in Arizona

By Peter R. Meis, M.D.

Tucson, Arizona

**C**OCCIDIOIDOMYCOSIS has been known for a generation to be endemic in Arizona. This discussion is to elaborate in some detail, first the factors which may influence the infestation rate in man and animals, and second, on the rate itself as demonstrated in studies at Davis-Monthan Air Force Base.

Physical characteristics which are commonly said to be necessary for the growth of the organism are: 1. Hot summer weather. 2. Mild winter weather. 3. Moderate rainfall. 4. Mildly alkaline soil. 5. Dust blowing winds. These factors, however, are present in areas not known to be infested. Some further factor may be present. In an unpublished paper read at the meeting of the American Veterinary Medical Association at San Antonio on 16 October 1956, Keith T. Maddy, Sen. Asst. Vet. of the United States Public Health Service made several extremely interesting observations. He discussed the Lower Sonoran Life Zone, a biologic zone which covers southern Arizona and extends in a half circle to the northwestern corner of the state. This zone extends from the valleys to an altitude of about 3,500 feet, more or less. Areas above 3,500 ft. such as Fort Huachuca, are islands in the zone with no small animal life characteristic of the zone. Maddy made the original observation that the creosote bush, *Larrea tridentata*, appears only in this zone and that therefore, the natural habitat of *Coccidioides immitis* could be identified by the coincidental presence of the plant. He found several isolated valleys in central Arizona where the creosote bush grew and coccidioidomycosis

was not known to be endemic. In these areas, he found the cattle to be coccidioidin positive, as they are in all endemic areas.

The reported incidence in Arizona of coccidioidomycosis in the past three years shows more than half the cases to be in Pima County. The expected incidence should be higher than reported in Pinal and Maricopa Counties. The writer has knowledge of many cases in Maricopa County that are unreported.

Correlation with the annual rainfall may well show relationship to the incidence in the following year. Reported incidence in Pima County in each calendar year has varied with the rainfall of the previous year, the infestation rate being much greater in the years following an unusually heavy rainfall. The soil infestation is very much greater in areas where water has remained for a day or two after a heavy rainfall. The author has trenched through such areas and found them rich in the mold at depths of more than 1 foot, whereas in soils on which water has not remained for many hours the fungus is rarely found at depth greater than 1 inch. Disturbances of the soil, as is done in clearing of vegetation preparatory to real estate development produces a distinct high infestation rate in both dogs and humans who move to the new, dust laden environment. The incidence rate at Davis-Monthan Air Force Base was studied in the second half of the year 1953. Both 1952 and 1953 were years of little rainfall. 1,090 persons with negative histories, negative chest x-rays and negative skin test were followed carefully by rechecks of skin test, x-rays and

questioning as to symptoms. The proven infestation rate was 11.8% in six months. The writer concurs in the general opinion that the infestation rate is at least 20% annually, so that five years residence in the Tucson area should theoretically produce a positive skin test in everyone.

In this study, 25 asymptomatic cases were found for each one having sufficiently severe symptoms that the patient required bed rest.

The morbidity rate in the irrigated cotton areas of Pima County is seemingly decreased sharply with the increased use of mechanical cotton pickers; however, the total number of human pickers is still very large, so that the question arises as to soil infestation being partially controlled by the use of powder fungicide dusted from aircraft. Of particular interest is a new fungicide used experimentally in 1955

and 1956, sold under the trade names of CAPTAN and ORTHOCIDE. This is N-tri chlor-methyl mercapto-4-cyclohexane -1,2 dicarboximide. It has been used in cotton fields, as a seed treatment, and on small fruits such as apricots. The toxicity for rats\* is rated as LD50mg/kg x 15,000, which is so little that serious consideration should be given to its use in both animal and human cases. At the instigation of Maddy several dogs with disseminated infestations, with draining surface lesions, positive sputa, and positive feces have been treated in the Phoenix area with CAPTAN. The production of spherules ceased and tissues became negative. No kidney or liver function studies were done either prior to or after treatment.

\*Fischer, Carl D. "Chemical Week" Vol. 79 No. 20, 17 Nov. 56  
NOTE: Orthocide is a production of California Spray Chemical Co. and Captan is a production of Stauffer Chemical Co.





## COMMENTS ON ARTIFACTUAL P.B.I. VALUES

Original Report of Vaginal Absorption of Iodinated Drug

By Clarence Robbins, M.D.

Tucson, Arizona

IN THE 1930's the Journal of Biological Chemistry published several reports of efforts to analyze blood for iodine. These reports are interesting to review because they describe the early steps in the evolution of analytic techniques and physiological experiments and interpretation that led to our present day acceptance of serum iodine determination as a nice diagnostic procedure. The concentration of S P I, serum precipitable iodine, (or the synonymous P.B.I., protein bound iodine) or of its younger, more refined relative B.E.I., butyl extractable iodine, can be measured with considerable accuracy and is probably the best available method for estimating functional activity of the thyroid gland. Some investigators have gone so far as to declare that previous methods of estimating thyroid activity, notably the B.M.R. are hopelessly out of date and should be discarded. It was recently remarked that the B.M.R. machine had no value except as a money maker for the doctor who owned one. Like most extravagant statements, this is untrue. Measurement of total metabolism in terms of oxygen consumption can be a very important adjunct in evaluating therapy in thyroid disorders especially where inorganic iodides are used for their well known beneficial effects, as preoperatively in cases of toxic goitre, and also where the newer potent thyroid hormones such as levo-tri-iodo thyronine are used in the treatment of hypothyroidism. In these situations P.B.I. concentrations may be quite unreliable. Likewise radioactive iodine up-take studies may be seriously misleading. There can be no dispute as the value of P.B.I.'s and I-131 uptake studies as diagnostic tools, but I venture to say it will be a long time before Magnus Levy's contribution to thyroid physiology can be scrapped.

It would seem unnecessary to remark here that the ultimate value of P.B.I. measurement depends upon the accuracy of the analytic methods employed except to emphasize that the element is being measured in micrograms and accordingly technical and artifactual errors assume great importance. The fact that the range

of normal values is closely restricted, 4 to 8 mcgms. per ml. of serum, further heightens the importance of artifactual errors. Different analytic methods admit different technical errors. Thus the widely used acid oxidizing procedure yields a false low value in the presence of mercury. The euthyroid patient who has received a mercurial diuretic as recently as 48 hours prior to sampling of his blood may show a P.B.I. concentration at myxedema level. Mercury does not disturb the alkaline ashing procedure. In most laboratories the methods employed admit of errors due to administration of inorganic iodides whether given openly as Lugol's solution or sodium or potassium iodides, or hidden in a capsule of pan-vitamin mineral complex. The increments of P.B.I. following administration of inorganic iodine are particularly confusing. If they were always large they could be detected at once but in fact they are of variable and unpredictable magnitude. They are not composed of simple inorganic iodine because they cannot be washed from the precipitated protein with water. They can, however, be removed from a butanol extract by alkali which differentiates them from thyroxine or the material produced in blood by organic iodine dyes and drugs. It would appear that the method employing butyl alcohol extraction, simple because it obviates the common errors caused by iodides, would be the method of choice. Furthermore there is good statistical evidence that the B.E.I. is a more precise measure of circulating thyroid hormones than the usual P.B.I. Nevertheless B.E.I. determinations remain in the ivory towers while P.B.I. methods are increasingly employed by commercial laboratories.

Obviously what we need is a reliable method for determining the circulating thyroid hormones which obliterates errors due to organic iodine compounds as well as inorganic iodides. This may not be far in the future and it seems reasonable to expect that present studies of thyroxine migration by paper chromatography will yield important steps to a precise method.

In the meantime we have to be discontent with the fact that all of the iodinated contrast media used in x-ray diagnosis foul up any and

\*(Presented at Staff Meeting, Tucson Medical Center, 4 September, 1956.)

all of the present chemical methods. We have to wait at least two weeks after I. V. pyelograms probably more than 16 weeks after G B series, POSSIBLY forever after bronchograms, and PROBABLY forever after myelograms. Some drugs, notably di-iodoquin, the popular remedy for amoebiasis and iodo-thiouracil used in the treatment of hyperthyroidism, make P.B.I. determinations futile for many weeks or even months. Apparently the iodine of the drug combines with protein of the serum. This occurs *in vivo*, but not *in vitro*.

Fortunately, the artifactual values produced by iodinated dyes and drugs are for the most part large enough to be detected immediately. One commercial laboratory in California advertises with ethical delicacy that it would rather not analyze contaminated specimens and urges the physician to secure a careful history of dye and drug intake before subjecting his patients to the invalid and expensive test.

I am sure all of us are careful most of the time to inquire about ingestion or injection of iodine containing substances but one question I suspect we frequently overlook is "What have you inserted into your vagina lately?" A careful search of the literature fails to reveal any mention of artifactual values of P.B.I. caused by the vaginal absorption of iodinated drugs.

We have it from no less an authority than the ladies' journals that millions of women in the United States are suffering from *Trichomonas vaginitis*. How many of these millions are using Floraquin suppositories for treatment is the business of the G. D. Searle & Co., but certainly it must be a considerable number. Each Floraquin tablet contains 100 ml. of Di-iodoquin. Diodoquin itself contains 63.9 iodine. Therefore each Floraquin tablet contains 63.9 mg. of iodine. This is equivalent to the iodine content of 500 tablets of U.S.P. Thyroid Grs., 1 ea., which would make a rather clumsy suppository.

Studies conducted during the past year and reported here for the first time indicate that enough organic iodine is absorbed through the vaginal membrane to significantly alter the P.B.I. of serum.

Serum P.B.I. determinations were made in paired samples of blood drawn before and after treatment. The before treatment specimen was obtained within 16 hours prior to vaginal in-

sertion of one or in most cases two tablets of Floraquin each containing 100 ml. Di-iodoquin. The after treatment specimen was drawn within 12 hours following the last insertion. In a few instances additional later specimens were obtained in an effort to ascertain the "decay time" of the artifactual values.

In a total of 23 paired serum analyses an artifactual increment was found without a single exception. Sera from 16 euthyroid subjects and from 7 hypothyroid patients showed essentially the same increment with a mean value of 2.2 mcgms., a maximum of 6.3 mcgms. and a minimum of 0.6 mcgms.

The largest increase occurred in the case of a patient who began treatment the day following conization of the cervix. One of the two smallest increases occurred in a patient who had been taking "Thyrar", one-half grain, daily for many months prior to the first blood sampling.

The data indicate that duration of treatment may not be significant in respect to the size of the increment: a single two tablet dose may yield a rise in P.B.I. nearly as large as that found after fourteen consecutive days of treatment. From scanty data available in 3 subjects whose sera were analyzed serially it appears that significant traces of artifactual increment may persist for at least one week after cessation of treatment. In one case serum P.B.I. had dropped to pre-treatment level after 10 days.

The real significance of the artifactual values caused by vaginal absorption of di-iodoquin becomes apparent in the following observations:

1. In 8 of the 16 euthyroid subjects the artifactual increment pushed normal P.B.I. values into the zone of suspect or probable hyperthyroidism, 8.2 to 11.0 mcgms.

2. In 6 of the 7 hypothyroid patients whose original P.B.I. values fell within the range of 0.6 to 3.5 mcgms., the increment resulted in pushing the P.B.I. values into the zone of normal. One frankly myxedematous patient with an original P.B.I. of 1.0 mcgms. ended up with a P.B.I. of 4.7 mcgms. after one week of nightly insertion of 2 Floraquin tablets.

It would seem obvious that the small artifactual values are more likely to be confounding than the artifacts whose magnitude immediately jumps to the least discerning eye.

The author gratefully acknowledges the generous cooperation of G. D. Searle and Co. in supplying Floraquin tablets and funds to pay for the serum P.B.I. analyses, all of which were made by the Bio-Science Laboratories, Los Angeles.

## TABULATED DATA

Patient	Floraquin intravaginally		Serum P.B.I. mcgms. per ml.		Increment
	Tabls. inserted daily	No. of days	Before	After	
<b>EUTHYROID PATIENTS:</b>					
V. K. ....	2	3	6.1	6.7	0.6
M. P. ....	2	1	5.5	6.3	0.8
M. P. (later study) ....	2	1	5.3	6.5	1.2
C. D. ....	2	8	5.9	7.0	1.1
L. B. ....	2	3	6.2	7.5	1.3
W. W. ....	2	1	6.6	8.5	1.9
				6.8 p	10 days
				6.8 p	20 days
L. H. ....	2	5	6.3	8.3	2.0
A. G. ....	1	14	4.2	6.3	2.1
M. S. ....	1	10	5.0	7.2	2.2
D. P. ....	1	10	6.0	8.3	2.3
J. C. ....	2	5	5.4	7.9	2.5
H. T. ....	2	7	7.8	11.0	3.2
D. C. ....	2	8	4.7	8.2	3.5
D. L. ....	1	10	6.1	9.7	3.6
I. R. ....	1	5	4.8	9.0	4.2
				5.8 p	10 days
				4.6 p	5 mos.
V. L. ....	2	10	4.7	11.0	6.3
<b>HYPOTHYROID PATIENTS:</b>					
M. C. ....	2	2	3.5	4.1	0.6
A. C. ....	2	9	0.6	1.7	1.1
E. P. ....	2	3	3.4	4.8	1.4
K. W. ....	2	1	3.4	5.1	1.7
W. W. ....	2	5	3.2	5.4	2.2
P. B. ....	2	4	3.4	5.8	2.4
A. W. ....	2	7	1.0	4.7	3.7
				3.3 p	9 days
				2.6 p	13 days



## PAINFUL SHOULDER

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**S**HOULDER pain is one of the most common complaints and often its etiology is difficult to determine. The painful shoulder may not be due to intrinsic lesions of the shoulder itself; the etiology may be located in the cervical region, thoracic region or abdominal region. This paper will deal with the more common causes of shoulder pain.

The pertinent facts of the history should include the following: (1) **PREDISPOSING FACTORS** such as trauma, occupation, exposure, and illness; (2) **NATURE OF ONSET** — gradual or acute; (3) **DURATION** of previous attacks; (4) **LOCATION** — is it limited to the shoulder with marked tenderness? Is it associated with neck stiffness and pain? Is it radiated to other locations? Is the hand involved? (5) **MOTION** — Is there limitation of arm movement? Is the pain aggravated by motion of the shoulder or cervical spine? Is it associated with other peripheral joint involvement? At this point it is well to remember a few generally accepted statistics — (1) Approximately 80% of all painful shoulders are due to tendinitis with or without bursitis; (2) Arthritis of the shoulder joint alone probably does not exceed 5% of all cases of shoulder pain; (3) Fibromyositis probably accounts for 8%; (4) Approximately 10% of painful shoulders is accounted for by acute traumatic lesions, such as soft tissue contusions, sprains, ruptured tendons and skeletal derangements such as fractures and dislocations.

Examination is best performed with the patient stripped to the waist and seated on a stool. **INSPECTION** of both shoulders for any asymmetry due to muscular atrophy or swelling should be made. **PALPATION** should be for tenderness over the head of the humerus, muscular tenderness of the shoulder girdle and of the cervical region and acromioclavicular and sternoclavicular joints, the hand and the scalenus muscles. **MOTION** should be evaluated first by the patient actively attempting to raise the hands above his head, then placing his forearm horizontally behind his back. Passive motion by the examiner should then be attempted. At this point it is well to remember that the sum of the shoulder motion is due to the simultaneous

participation of the scapular humeral, scapular thoracic, acromioclavicular and sternoclavicular articulations. Is there limitation of extension, flexion, rotation and lateral flexion of the cervical spine? It is most helpful if one is acquainted with the anatomy of the shoulder girdle, as well as the cervical region. The rotary muscular tendinous cuff is formed by the conjoined tendons of the supraspinatus, infraspinatus, teres minor and subscapularis muscles being responsible for the rotation of the humerus and the setting of the head of the humerus in the glenoid cavity for abduction by the deltoid. Degeneration in this conjoined tendon is frequent, and with elevation of the arm friction is produced in the rotary cuff as it slides under the acromium process and adjoining ligaments. Attrition, due to the upright position of man, is the usual primary cause of muscular tenderness and degeneration in this area, and other forms of trauma may be responsible in some cases.

Table I presents a simplified classification of etiological causes of painful shoulder. Such a classification is difficult, usually unsatisfactory, and often incomplete. The most frequent and important causes of painful shoulder will be discussed separately at this time, as to diagnosis and treatment. The pathological findings in the various tissues will be dispensed with in this paper.

**I. TENDINITIS OF THE SHOULDER, MORE COMMONLY KNOWN AS BURSITIS.** Tendinitis may involve one tendon or it may be multiple, and usually involves the tendon of the supraspinatus muscle. As previously noted, there is usually a focal degeneration of the tendon fibers which may be associated with rupture of some of these fibers and calcific deposits. This may produce an inflammatory reaction of the subacromial bursa and expulsion of the degenerated material into the bursa, where it may be absorbed in a matter of hours or produce intrabursal adhesions, resulting in limitation of motion. The cause may be considered to be trauma, whether due to postural strain, overuse, partial rupture of the musculotendinous cuff, direct injury, prolonged im-



**TABLE I**  
**Etiological Classification**

**ARTICULAR: (Shoulder or Cervical Spine)**

1. Traumatic (Fractures, dislocations, dislocation, sprains, occupational, whip-lash, radiculitis).
2. Infectious (Specific).
3. Arthritis (Rheumatoid, degenerative, traumatic, infectious).
4. Collagen Diseases (Lupus erythematosus, scleroderma, dermatomyositis).
5. Neuropathic (Diabetic, Charcot's).
6. Neoplastic (Osseous, primary, metastatic).

**NON-ARTICULAR: (Shoulder and cervical soft tissue — inflammation, degeneration, trauma, congenital anomalies, postural, occupational, neurological, vascular).**

1. Tendinitis (Degenerative, traumatic, occupational and others) and/or Bursitis (Inflammatory).
2. Periarthritis (Frozen shoulder).
3. Shoulder-Hand Syndrome (Reflex, neurovascular, dystrophy, viscerogenic — thoracic and abdominal).
4. Scalenus Anticus Syndrome and Cervical Rib (Hypertrophy and congenital anomalies).
5. Fibromyopathies (Myalgias, capsulitis, traumatic, collagen diseases).
6. Vascular (Arterial, venous, lymphatic — obliterative, traumatic, inflammatory, surgical).
7. Neurological (Radiculitis, neuritis, neoplastic, infectious, syringomyelia, and others).
8. Neoplastic (Primary, metastatic, lymphomas).

**PSYCHOGENIC:**

mobilization, or repeated irritation due to pressure of the rotary cuff against the coracoacromial ligaments and the acromion process. In this condition diagnosis is relatively easy as there is usually acute pain involving the point of the shoulder, with point tenderness over the involved tendon, which is usually over the greater tuberosity below the acromial process. This is associated with marked limitation of rotation and abduction of the humerus. On occasion pain may be radiated into the arm, usually near the insertion of the deltoid, and occasionally in the fingertips. The patient may

also experience pain radiation into the cervical region of the involved side, associated with muscular spasm due to the tendency to hold the arm in the least painful position. The diagnosis may be aided by fluoroscopic or x-ray examination of the shoulder girdle. Only approximately 50% of the cases of acute tendinitis and bursitis reveal x-ray evidence of calcification. Calcification may occasionally be present in these tendons without any particular symptoms.

The first aim of therapy in this condition is the relief of pain for the patient's comfort, as well as the mobilization of the shoulder joint to prevent permanent limitation of motion by adhesions and occasionally associated periarthritic arthritis. This may be accomplished most rapidly by procaine injections into the area of point tenderness. In the absence of calcification this is an important diagnostic aid, as acute pain is relieved almost immediately and the shoulder motion is increased. At the same time, the important problem is to relieve the inflammation of the tendon, bursa, and other periarticular tissues if it be present.

While the majority of these cases will recover by conservative therapy of mild pain-relieving drugs and physiotherapy (consisting of heat, passive and graduated active exercises), this form of treatment alone usually takes several days and frequently prolonged periods of convalescence. I find that combining this form of therapy with procaine infiltration of the bursa and tendon, and the injection of hydrocortisone acetate, one or two cc (25-50 mgm), in the same area usually gives relief within fifteen to thirty-six hours. It is necessary to give this form of injection usually on one to four occasions, every other or every third day. In approximately 90% of the cases this will give the most prompt and complete relief in the shortest period of time, thereby reducing the hazard of prolonged, continuous, and increasing inflammation which may eventually limit joint motion. It may be presumed that the infiltration of procaine and hydrocortisone also possibly hastens rupture of the necrotic material into the bursa, aiding more rapid absorption of the degenerated and calcified products.

The second choice of treatment is Butazolidin, 200 mgm t.i.d., p.c., for five to ten days in conjunction with the previously mentioned conservative program. It will give relief in approxi-

mately 70% to 80% within two to seven days. In patients where there are contraindications to the use of this drug, it should be avoided.

Roentgen therapy will give adequate relief in approximately 60%; however, this is slower and usually more expensive.

With these three forms of therapy practically all these patients will obtain adequate results. The calcifications usually disappear in weeks with either therapy. Decompression by needle or surgical intervention is seldom necessary. It may be possible on occasions to remove some of the calcific deposit while infiltrating procaine preceding hydrocortisone acetate injections.

II. PERIARTHRITIS of the shoulder is characterized by stiffness, limitation of motion, and pain at rest, which is aggravated by attempted motion. This is due to periarticular fibrosis mainly involving the capsule of the joint, and may be caused by any of the factors which produce shoulder pain. Coventry believes that for this condition three factors must be present: (1) The peri arthritis personality must be present; (2) Disuse; (3) Pain of any sort, even including viscerogenic reflex pain. The involvement and disability may vary from slight limitation of motion with minor pain, which usually occurs early, to severe pain and limitation with the so-called "frozen shoulder." This pain may be referred into the arm, forearm and hand, with associated stiffness and contractures, as well as being referred into the cervical region. This may be associated with swelling of the hand and forearm, and limitation of motion of the fingers which also become tender and painful. Therapy in this condition is usually other than satisfactory, due mainly to the fact that it is not recognized until the later stages of its progress; therefore, early recognition and prevention of immobilization in certain individuals is the secret of successful therapy. Treatment should be directed toward relief of the pain and early mobilization, prevention of original disuse, associated with physiotherapy consisting mainly of deep heat, massage, stretching, passive and active exercises. Hormonal therapy in this condition will be discussed under Shoulder-Hand Syndrome.

III. TRAUMATIC LESIONS, fractures, dislocations, ruptured tendons, direct contusions and sprains, both of the shoulder and cervical spine, will not be discussed. Ruptured disc or cervical arthritis may produce radiculitis of the

brachial plexus with radiation into the shoulder, arm, forearm and hand. This can usually be diagnosed from the history, physical examination and roentgenographic inspection of the cervical spine. Occasionally there will be motor involvement with atrophy and weakness of muscles involving the shoulder girdle and upper extremities. There may be other evidence of nerve root involvement, as shown by paresthesia, anesthesia, etc.

Worthy of discussion is the so-called "whiplash" injury of the neck. This is usually the result of a sudden snapping hyperextension followed by flexion of the cervical spine, most commonly occurring when a car in which the patient is riding is struck from behind. The majority of this type of injury are followed by pain and stiffness, with limitation of motion of the cervical spine associated with muscular spasm and tenderness of the cervical region, usually being aggravated by hyperextension, flexion, rotation, or pressure on the top of the head. This is usually relieved by cervical traction, deep heat and massage. It may be necessary to repeat this on several occasions. It is always advisable to precede any treatment of these cases by x-ray of the cervical spine, which frequently will reveal loss of the normal lordotic curve. Most cases of this type are found in individuals past the age of forty and usually there will be evidence of marginal osteophyte formation which may reveal definite evidence of encroachment as well as narrowing of one or more of the intervertebral discs, which is usually indicative of previous degenerative disease or injury and may prolong the period of recovery. Surgical intervention is seldom necessary in patients adequately treated with traction, heat, massage, and from a postural standpoint.

IV. SCALENUS ANTICUS SYNDROME AND CERVICAL RIB. This condition is produced by pressure and irritation of the brachial plexus and compression at the subclavian artery, usually involving the nerves of the lower portion of the brachial plexus. The scalenus anticus muscle is enervated by the brachial plexus itself and this may produce a secondary spasm of the scalenus anticus muscle, thereby adding further pressure and irritation. The onset of this condition is usually in the fourth decade when the shoulder girdle has become lower, stretching the brachial plexus or subclavian artery over a cervical rib or the first thoracic

rib. The scalenus anticus muscle may become hypertrophied or may be injured by trauma; there may be a high fixation of the ribs to the sternum, or a low origin of the brachial plexus. There may be other lesions of the cervical spine, neoplastic or infectious in nature. In some instances pain of the shoulder joint may produce spasm of the scalenus anticus muscle with the resultant syndrome. Subjectively the patient complains of mild to excruciating pain, tingling, numbness, and occasionally coldness which may extend from the cervical, scapular or pectoral regions down the entire arm, usually being more pronounced along the ulnar nerve distribution. In many instances this may resemble the pain of angina. It may be described as a tired, heavy, dragging, weak sensation in the involved extremity. Objectively there is usually tenderness over the lower portion of the scalenus anticus muscle just above the clavicle. There may be anesthesia, paresthesia, and occasionally hyperesthesia. The involved extremity may be cold; there may be discoloration, evidence of skin atrophy and absence of the radial pulse, particularly when the head is rotated to the opposite side. Shoulder motion is usually unimpaired. The important diagnostic features are aggravation of the symptoms by pressure over the lower portion of the scalenus anticus muscle, certain activities or downward stretching of the arm, turning of the head to the opposite side, and there is occasional relief by elevation of the shoulder.

Therapy in this condition depends entirely upon the severity of the symptoms. Where the symptoms are mild or recurrent in nature, they may be treated conservatively with correction of postural defects, and sleeping habits; elevation of the arm, and avoiding activities that precipitate these attacks. In the more persistent, disabling, painful scalenus anticus syndromes procaine injection of the scalenus anticus muscle may give temporary relief; also, sleeping with the arm in certain positions; physiotherapy to strengthen the trapezius muscles as an aid in producing better elevation of the shoulder and the section of the scalenus muscle at its insertion next to the first rib. In those cases where a cervical rib is present, the rib should be removed surgically, as well as division of the scalenus anticus muscle. In this condition the sedimentation rate is usually normal. Other conditions that may produce brachial plexus ir-

ritation with symptoms of the scalenus anticus syndrome should be corrected. X-rays of the cervical spine, shoulder girdle and chest are important diagnostically, particularly in determining the presence of cervical rib and other lesions which may cause brachial plexus irritation.

**V. THE SHOULDER-HAND SYNDROME OR POSSIBLY SYMPATHETIC AND SPINAL REFLEX DYSTROPHY.** This condition may occur without any apparent cause but the majority of cases are noted following myocardial infarction, cerebrovascular accident with hemiplegia, immobilization of the arm as a result of injury or fracture, or degenerative changes of the cervical spine with encroachment of the foramen. Apparently disuse is an important factor. It may be bilateral but is usually unilateral, and apparently there is a close relationship between this and periathritis of the shoulder. Symptoms usually begin as painful disability of the shoulder, either gradual or acute, developing over a few hours to several weeks. This is soon followed by generalized swelling and stiffness of the fingers and hand, and at times the hand may be involved first. Over a period of a few months there is gradual relief of shoulder pain, as well as decreased swelling of the fingers and hand, but flexion deformities and stiffness of the fingers usually remain and become more pronounced. This may be accompanied or followed by atrophic changes of the skin and osteoporosis of the bones of the wrist, fingers and head of the humerus. The resulting stiffness and contractures of the fingers usually remain indefinitely. Associated with these changes are other vasomotor disturbances, sweating, temperature changes, and occasionally changes of color. Important therapeutic success results from keeping constantly in mind the possibility of this condition following certain illnesses and injuries. The earlier treatment is instituted, the better the results obtained. Conservatively this consists mainly of physiotherapy, (massage and heat), and prevention or relief of the exciting cause. Probably one of the most important measures to use in this condition is repeated stellate ganglion blocks, which theoretically should interrupt the sympathetic reflex influence; and early institution of steroid therapy, particularly prednisone and prednisolone, and local infiltration of hydrocortisone. Often relief is of short duration or none at all. There is no completely

satisfactory therapy in this condition and contraindications to steroid therapy should be kept in mind.

VI. ARTHRITIS. As arthritic involvement of the shoulder alone occurs in probably less than 5% of the cases of painful shoulder, this does not become a very difficult problem. If there is general involvement of other peripheral joints with rheumatoid arthritis or degenerative arthritis, the etiological cause is more simplified. Here x-ray findings, as well as laboratory, are often helpful. Traumatic or infectious arthritis may also be included, as well as neuropathic forms due to conditions such as diabetes and Charcot's disease of the joints. Cervical spondylitis, whether traumatic, degenerative, rheumatoid or infectious, is usually apparent by the

distribution of pain, x-ray findings of the cervical spine, laboratory examinations, and lack of shoulder findings on physical examination.

VII. MISCELLANEOUS CAUSES OF SHOULDER PAIN. These consist of fibromyopathies, neoplasms, collagen diseases other than rheumatoid arthritis, neuritis, syringomyelia, herpes zoster, vascular lesions, and surgical procedures. These will not be discussed; the majority of these become self evident with adequate history, physical examination, roentgenographic studies, and laboratory procedures.

SUMMARY: The most common and difficult causes of shoulder pain have been discussed, and therapy of each has been outlined. While this discussion is far from complete, it does cover the most common problems encountered.





## RATIONALE FOR VASOCONSTRICTIVE THERAPY OF INFLAMMATORY EDEMA\*

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**T**HE PERSUAL of current dermatologic literature for specific information as to the role of edema in various dermatologic disorders reveals a paucity of information on edema which is applicable for the busy physician. Edema is a commonly concomitant finding which accompanies many diseases, both of the skin and of other tissues and organs.

Edema causes the omnipresent swelling in parenchymatous tissue which is produced by the process of inflammation. Edema (1) is defined as an "excessive accumulation of fluid in the tissue spaces; due to disturbances in the mechanisms of fluid exchange. There may be a decrease in osmotic pressure of the plasma from reduction in protein concentration, increased hydrostatic pressure in the capillaries due to cardiac failure, increased permeability of the capillary walls from injury or inflammation, or there may be obstruction of the lymph channels."

The significance of edema in disease has been of prime importance to most inquisitive physicians since the first description of Celsus.

Edema is only one manifestation for the presence of inflammation. Hence, one cannot exclude the fundamental condition of inflammation when the highly important subject of edema is to be considered. Dible(2) recorded that "the reaction of living tissues to injury is known as inflammation." Christopher(3) wrote that inflammation is the most fundamental of all pathologic processes. He noted that "not only is the surgeon concerned with removing irritants and aiding the tissues to resist their action, but he produces some degree of inflammation with every stroke of the knife. Moreover, inflammation blends so imperceptibly with the process of repair that it is impossible to say in any given case where one ceases and the other begins."

Wounds are characterized by the cardinal signs of inflammation which are rubor (redness) turgor (edema or swelling), calor (heat), dolor (pain or itching) and functio laesa (loss of function). Some pathologists include only those as-

pects of local change which are exudative in nature when considering the process of inflammation(4).

In spite of being obviously important, the subject of tissue edema has not received much enlightening information in the literature as to its exact role in disease.

The authors questioned some colleagues about their thoughts as to the significance of edema. Few of these doctors placed much stress on its presence. The mutual thought on this topic was that something should be done to relieve its pressure if it produced discomfort to the patient or if it interfered with normal function.

This reaction reminded the authors of the profession's attitude to the presence of pus many years ago. Pus was laudable at that time. However, the passing years have changed the profession's attitude to "laudable pus" when its real significance became both known and understood.

Karsner(5) wrote: "The inflammatory reaction is principally on the part of the mesoblastic tissue. Included are (a) changes in the blood vessels and blood within them, and (b) proliferation of cells of the supporting connective tissue. These are concerned with all kinds of exudative inflammation. Parenchymal cells are involved in what is called alternative inflammation, but that involves degeneration and necrosis rather than proliferation. The blood vascular reaction begins almost immediately after injury. The reaction in the connective tissue is delayed for a short time but may be observed in less than a half hour. The vascular alterations lead to exudation. Cells of the exudate and some of those of the fixed tissues remove debris and bacteria; they cleanse the region."

However, this cleansing action through exudation, if it reaches uncontrollable proportions, can create a most serious situation by this outpouring of blood serum, as in the case with extensive burns. Hence, such an untoward and unbridled exudative situation can very well lead to a very serious and severe state of hypoproteinemia(6).

One of us demonstrated the pathologic action

\*Read before the monthly medical staff meeting, Two Rivers Municipal Hospital, May 8, 1956.

which trauma is quite capable of exerting on parenchymatous tissue. The mere presence of "locked-in" blood serum might be capable of releasing leukotaxin (Menkin) which is capable of attracting a definite fibroblastic response(7). Such a bodily reaction is connected definitely with the early phase of tissue healing. However, if such a response becomes marked it can initiate a piling-up of fibroblasts. Keloids or hypertrophic scars may well be the end result.

In order to treat such unwarranted tissue response, Gathings(8) employed hyaluronidase and Kutapressin. This investigator reported that "this is probably the best method for treating keloids and hypertrophic scars with the aim of causing softening and resolution."

Recently, it has been demonstrated that hyaluronidase is biologically antagonistic to the bioflavinoids, such as hesperidin(9) and quite possibly the concomitant use of vitamin C, which definitely exerts a synergistic action with these bioflavinoids.

The exudative phase, connected with the highly important phenomenon of inflammation, is enhanced definitely through vasodilatation. The blood vessels in the affected area become dilated and hyperemia is produced. Along with vasodilatation goes increased capillary permeability and a disturbed osmotic pressure of the walls in the vascular tree. Hence, an outpouring of fluid results in the parenchymatous tissue. This is known as edema.

Edema is the principal cause for tissue swelling. Boyd(10) stated that "the exudate which collects at the site of irritation is partly derived from the blood (hematogenous), partly from the tissues (histogenous). The various forms of leucocytes of the blood migrate through the vessel walls; the blood plasma also passes out, and gives rise to the formation of fibrin; the wandering cells of the tissues accumulate at the site of irritation. These three constitute the inflammatory exudate." Boyd states also that "the amount of the exudate varies greatly, depending on two main factors, the irritant and the site. (1) The bite of a mosquito and the sting of a nettle are examples of irritants which cause a marked outpouring of fluid. In a blister the exudate is almost serous . . . (2) The more open the tissue, the greater will be the exudate. It is most marked in serous sacs (pleurisy, peritonitis). In loose cellular tissues the fluid

may be abundant . . . In such dense structures as bone the amount is negligible"(11).

Boyd gave a poignant relationship of inflammatory changes to the well-known cardinal signs of inflammation(12). He related that "the heat is due to the increased amount of blood flowing through the part. The redness is also caused by the local hyperemia. The swelling is to be attributed in part to the vascular dilatation, but much more to the accumulation of exudate in the tissues. The chief constituent of the exudate responsible for the swelling is the lymph, the accumulation of which leads to inflammatory edema . . . The pain is caused by pressure on the nerve endings . . . Loss of function, varying in degree is partly due to pain, partly due to destruction of tissue," and possibly, we might add, because of the infiltration of tissue by the edema which invades the injured areas.

According to Moore(13) the causes for shock are due to capillary injury and increased capillary and cellular permeability, which produce marked changes in fluid and electrolytic economies of the body. Moore(14), in discussing the pathologic alterations in effective filtering pressure, states that "normally the outflow and the inflow from the vessels are delicately balanced, but under pathological conditions the outflow may greatly exceed the inflow, and fluid may accumulate in the tissues — a condition designated as 'edema'. Thus if the gradient of pressure is shifted toward the venous side by arteriolar dilatation, as in local or general increase of temperature and inflammation, greater amount of fluid will promote the movement of fluid from blood to tissue. Generalized edema or an anasarca is usually more conspicuous in the lower extremities, where the hydrostatic pressure of the long column of blood is effective."

It appears obvious that the production of tissue swelling is the result of edema formation. Edema is but a part of any viable tissue's reaction to injury. If this formation becomes excessive, many substances wholly important to the body's economy can become lost. Vital protein substances and electrolytes are excreted in the bandages which cover such wounds. Any clinician has only to remember such marked losses which arise in connection with extensive burns. If allowed to persist for some time, and if these precious substances and fluids are not

replaced rapidly, shock can be expected. Hence, transfusions are employed to replace such losses. Pressure bandages are used to stop or at least control the loss of these life-sustaining materials.

Therefore, it is mandatory that each clinician employ every therapeutic means to conserve those important elements which are found in the exudative outpouring as the result of burns, disease, or other aspects due to trauma.

This subject is too comprehensive to review all the conditions where such massive loss of tissue fluids exist.

This subject of edema formation and its extravasation from the body's economy has been a problem which has intrigued the writers for many years. Perhaps this conservation of edematous exudate with vasoconstrictive means is the reason why Sano and Smith(15) studied the effect of lowered temperature upon fibroblasts which were grown in vitro. These investigators found that temperatures between 5 and 10 degrees Centigrade were bacteriostatic. Furthermore, these observers discovered that temperature of 20 to 25 degrees Centigrade were adequate for wound healing in the deeper tissues where connective tissue repair was taking place. It has been known generally for many years that cold causes a narrowing of the apertures in blood vessels. Vasoconstriction, through the application of cold as with the use of ice packs slows the circulation around a healing wound. Thus, the products of metabolism remain in close contact with the cells for a longer time than they could if the blood stream became accelerated.

It is known that the use of a firm compression bandage produces some vasoconstriction. This same vasoconstriction effect can be produced at least partially through the use of tension sutures which compress the gauze dressing of wounds. We have had plenty of opportunities to test this belief, and we have observed both the better conservation of tissue fluid coupled with a more rapid healing rate of such surgical wounds. Furthermore, the chance for the formation of hypertrophic scars and keloids appears to be lessened markedly if the above measures are employed.

As has been stated heretofore, severe burns are notorious for producing marked losses of precious tissue fluids through overproduction and loss of edematous fluids. To put our hypo-

thesis to a test, and in order to determine if vasoconstriction of a burned area can enhance the healing process, we compared vasoconstricted burns with those cases who were not given vasoconstrictive measures(16). It was found that the excessive formation of tissue edema distinguished second degree from first degree burns. We thought that second degree burns could be converted into first degree burns by inhibiting this serous exudate. And so a small series of cases with second degree burns were treated with a sulfathazole-allantoin ointment with compression bandages. The average healing time was 34 days per case. Then a similar series of cases with second degree burns were treated in like fashion. However, beforehand, each case was given a non-toxic injectable material\* subcutaneously to vasoconstrict the burned areas. It was found that when vasoconstriction, ointment, and compression bandaging were employed, these burns healed nearly five times as fast as when this vasoconstricting agent was not used. Therefore, it seemed possible to convert second degree burns into first degree burns and thus lessen the average healing time for these burned areas.

We felt that the trauma connected with child birth produces marked edema in the post-gravid uterus. Hence, post-partum lochia could be considered as a special form of exudation. It was our desire to determine if vasoconstrictive measures in these post-partum patients would control the lochial discharge(17). It was found that Kutapressin, a new non-toxic selective vasoconstrictor, was successfully used in 68 consecutive post-partum cases to suppress lochial discharges. By the sixth post-partum day, the lochial discharges were eliminated. Furthermore, uterine involution appeared to keep pace with lochial control under this therapy, while those patients in the control group, and who had not received Kutapressin (vasoconstrictive) therapy, showed no similar findings.

Edema production is marked in cases with poison ivy dermatitis. Local measures, such as moist compresses with Burow's solution, are used routinely to relieve the intense itching caused by the excessive formation of tissue edema in the integument. It has been found

\*Kutapressin, a non-toxic vasoconstricting aqueous solution which is prepared from liver by a series of fractionations. This material is manufactured by the Kremers-Urban Company of Milwaukee. It has been demonstrated definitely that Kutapressin will not affect systemic blood pressure.



that the signs and symptoms produced by contact with poison ivy in susceptible patients can be relieved rather dramatically by producing vasoconstriction in these edematous skin areas with the use of Kutapressin(18).

Unpublished observations by the authors have been obtained in other cases where the presence of edema is an important factor. Cases with angioneurotic edema, Quincke's disease, and pruritus ani have responded adequately to therapy with the non-toxic vasoconstricting injections. Although our experiences with cases of hydrocele, hydrothorax, and ascites, due to hypoproteinemia are not extensive, the therapeutic results have borne out the contention that vasoconstrictive measures, as with the use of Kutapressin, bring highly acceptable results wherever the presence of edema happens to occur, and if other concomitant serious pathologic lesions, such as malignancies and cardiac decompensation, are not present.

It is not the intent of the authors to give anyone the idea that the use of this vasoconstriction procedure produces a completely specific result. But as far as we are aware, this procedure appears to be the best which happens to be available at this time.

We feel sure some colleague will desire to mention the use of the steroids for the treatment of such edematous conditions as have been mentioned in the course of this paper. Allow us to quote the experience of Professor Cleveland J. White, of Chicago, who, while discussing the problem of chronic urticaria(19), had the following to state: "I might mention at this time that Kutapressin used symptomatically in my hands over the past seven months, has given brilliant results. This preparation is a vasoconstrictor put out by the Kremers-Urban people in Milwaukee . . . It is amazing the number of cases I have had which did not respond to the steroids, but did respond to Kutapressin in symptomatic relief; and sometimes resulted in a definite cure while we were attempting to uncover the etiologic factors."

## CONCLUSIONS

The exudative aspects of edema probably exert a cleansing action in traumatized tissue. If the exudate becomes inspissated, fibromatous changes may occur, as exemplified by hypertrophic scars and keloid formations. The treatment of edematous states, as in burns, the post-partum uterine lochias, and exudative lesions, as seen in poison ivy cases, show more marked and more rapid healing when such areas are vasoconstricted. It is the opinion of the authors that edema does not serve a very useful purpose. Its suppression brings about better healing in those varied diseases which have been treated by the authors with vasoconstrictive measures.

Recently, Overman(20) wrote: ". . . Some attempts should be made to reduce edema whenever and wherever it forms . . ." This constitutes important advice to the clinician whenever this aspect of inflammation is discovered.

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## TRICHINOSIS MYALGIA: ITS CONTROL AND TREATMENT WITH REPOSITORY TUBOCURARINE

### A Case Report

By Edwin A. Busse, M.D.  
Tucson, Arizona

**T**HE CONSUMPTION of raw or inadequately cooked pork sooner or later makes the eater liable to trichinosis, one of the more serious parasitic diseases. Gould(1) has conservatively estimated that at some time during their lives 25% of all Americans will harbor trichina larvae in their muscles.

Viable larvae of *Trichinella spiralis* are liberated when infected pork is ingested. The larvae mature to worm adulthood early (3 to 4 days) in the small intestine. After copulation, the fertilized female discharges fully formed embryos which give rise to a new generation of larvae. These travel widely in the blood stream and then encyst in muscle fiber where they remain viable for years.

Gould and associates(2) indicate that 1.5% of all hogs slaughtered in this country are infected with the larvae of trichina and the average mortality in trichina infected people in this country is from 5 to 6%.

The symptoms and severity of trichinosis bear a direct relationship to the quantity of trichinella ingested. The symptoms of trichinosis which primarily compel the patient to see his doctor are those resulting from the invasion of the muscles by the larvae: muscle tenderness and pain, and pains in the extremities. The muscle pain may be so severe that extreme disability results with generalized muscular stiffening from spasm, and weakness. Extreme involvement of respiratory muscles, diaphragm and intercostals causes difficulty in breathing and occasionally, death.

The diagnosis of trichinosis is suggested by a history of the consumption of raw or uncooked pork and may be confirmed by muscle biopsy. The supporting evidence consists of a history of initial gastrointestinal upset characterized by diarrhea, abdominal pains, nausea accompanied by fever, fatigue, and headache — a syndrome resembling the onset of acute 'flu; pain and tenderness of skeletal muscle, are at times severe and excruciating. There may also be dysphagia; weakness, and occasionally paralysis, of extra-ocular muscles; pain on movement of

the eyes and fundal hemorrhage; periorbital edema; marked eosinophilia in the peripheral blood smear; positive trichinella skin test.

The following case record is interesting from several points of view: a fairly typical history, complaints and physical findings; the apparent failure of adrenocorticotrophic hormone and hydrocortisone to provide clinical relief and otherwise alter the progress of the disease; the addiction to narcotics required for the relief of the severe muscle pain; the value of Tubadil, a long-acting skeletal muscle relaxant, in controlling the myalgia incidental to the trichinosis and the presumptive value of this same drug in the prevention of narcotics withdrawal muscle spasms and convulsions.

### CASE REPORT

The patient was a 42 year old retired marine engineer whose past history is significant in that while in the Pacific he was hospitalized on three occasions for "tropical worms". He has been seen two years previously for amebic colitis at which time systic and motile forms of *E. histolytica* were identified on proctoscopic examination.

The current illness began when the patient complained of pain in the muscles of legs, thighs, and arms during the latter part of September 1954.

A system review disclosed nausea and diarrhea of 3 days duration associated with a nocturnal temperature of 102° for two days.

The physical examination was significant in that there was moderate puffiness under the eyes without peripheral edema. The blood pressure was 135/88, however, splinter hemorrhages were noted in the conjunctivae and retinae (these eye manifestations were confirmed by an ophthalmologist). There was exquisite tenderness of the gastrocnemius, thigh muscles, deltoid, biceps, and triceps. The temperature was 101°.

The sedimentation rate by the Wintrobe method was 8-15-25-45 mm. at fifteen minute intervals. There was a white blood cell count of 10,000 with 12% eosinophiles. Skin test with

trichinella extract (Lederle) 1-10,000 was 3+ in different minutes; the control was negative. A diagnosis of acute trichinosis was made.

Upon further inquiry, it was determined that this man had visited a sausage factory one week previously where he had observed a sausage maker at work. He rather sheepishly admitted that the mixture smelled so good and the spices so fragrant that he had furtively dipped his finger into the mixture before it had been processed and ingested about one and one half ounces.

Treatment consisted of adrenocorticotropin gel, 80 units a day, hydrocortisone, 20 mgs. four times a day, and an oral salicylate compound. However, his muscular pain was so extreme that despite this medication it was necessary to give injections of dihydromorphinone (Dilaudid®), 4 mg. (1/16 gr.) as often as every two hours.

Since it was necessary to maintain the patient on this heavy narcotic schedule for three months during which time he became habituated, he was hospitalized for the purpose of withdrawing narcotics. His muscular pain was so well controlled with 1 cc. of Tubadil® intramuscularly daily that, in spite of the rather severe addiction, we were able to withdraw the dihydromorphinone slowly. By the end of the first week in hospital, he was completely free of further need for this narcotic. Chlorpromazine, 50 mg. was administered intramuscularly every six hours. There were no withdrawal symptoms and no further muscular pain. The Tubadil was given for a total of 14 days.

He was seen for a checkup one year later and his condition was found satisfactory.

#### COMMENTS

The diagnosis of acute trichinosis ordinarily presents little or no difficulty as in the case reported here. With respect to treatment, however, the situation is quite different. Chemotherapeutic agents with a direct larvicidal effect on trichinella in the tissues have yet to be developed. Treatment therefore has been directed primarily along supportive and symptomatic lines. ACTH and the adrenal steroids are beneficial, lessening the severity of the patient's reaction to the disease by modifying the body's defense mechanisms. While this was not en-

tirely apparent in our patient, the value of adrenocorticotropin hormone and cortisone had been reported by others(3).

The value of Tubadil for our patient lies in its having provided prolonged relief from the severe muscle pain of the myositis. The accomplishment of this type of analgesia is a function of the alkaloid, tubocurarine, which, in Tubadil, is suspended in a special menstruum. This suspension decreases the hazards accompanying the use of the aqueous forms of curare and provides prolonged relaxant effect. It is this long-lasting relaxation of muscle in spasm by Tubadil which has been shown (4-13) to be responsible for the salutary result, relief from pain.

In our patient, Tubadil appeared to offer more than the desired clinical effect, namely, alleviation of muscle pain. Its use decreased and ultimately eliminated the need for dihydromorphinone. In our opinion, Tubadil contributed significantly to the absence of symptoms of narcotics withdrawal.

We can only conjecture as to the possible useful role of Tubadil to relieve the severe pain of the acute trichinal myositis at the onset of muscle symptoms. It is possible that had we used it at the onset of muscular symptoms, we might not have had to resort to narcotics for relief of muscle pain and might thereby have lessened the likelihood of addiction.

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\*TUBADIL, manufactured by Endo Laboratories Inc., Richmond Hill, N. Y., contains 25 mg. tubocurarine per cc. in a menstruum composed of peanut oil, beeswax and oxysterol derivatives.

## THE *President's* PAGE

**I** attended a Christmas concert presented by the orchestra and chorus of my daughter's grammar school. With true parental pride, I sat in the audience, and beamed like the other fathers. The voices of the children were immature, but the tones that came forth were sweet and true, and the singers were angelic. The orchestral endeavors were not the polished, suave performances of a Boston Symphony, but the performers were sincere and enthusiastic. To my own usually critical ears, the music praising the wondrous birth of the Christ child and the story of the Magi was like a great choir of polyphonic music of Palestrina ascending to heaven like "cathedrals built of sound."

Why? Because my child was in that group of wonderful children, many of whom I delivered, attended their illnesses, fixed their broken limbs, and gave them immunizations. I enjoyed a warm, glowing pride for all of them.

Now, you may wonder, "Why does a doctor, — a man of science, become so emotional over the musical endeavors of a bunch of kids?" Well, — I am a father first, — then a doctor, I am also a member of my community, and am proud of these children.

My pride in the children of this community made me muse about children in other communities all over the world. They do not differ, — except possibly in color, geographic location, basic freedoms, and the amount of food their parents are able to provide for them. They are good and sweet, like my own, and just as bright and eager. They are like the bright star in the East, promising redemption, and possessing such a great potential for goodness and kindness in a troubled world that cries in the agonies of Hungary, Poland, East Germany and Korea.

Recognizing the goodness of our children strengthens, (or shall I say, stimulates) my too-often sagging resolve to be a better man and a better doctor. It prompts me to be a little kinder, to offer a little extra service, and to be less grumpy when I am called out for that night house call. I believe that I am a little more humane and gentle with my patients.

Maybe I should go to children's concerts every night!

The best to all of you in 1957.

A. I. Podolsky, M.D.

President

THE ARIZONA MEDICAL ASSOCIATION, INC.

# Editorial

## ARIZONA MEDICINE

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.  
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

7. Exclusive Publication—Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.

8. Illustrations—Ordinarily publication of 2 or 3 illustrations accompanying an article will be paid for by Arizona Medicine. Any number beyond this will have to be paid for by the author.

9. Reprints—Reprints must be paid for by the author at established standard rates.

The Editor is always ready, willing, and happy to help in any way possible.

## THE WORLD MEDICAL ASSOCIATION

SINCE many physicians have recently received invitations to join this organization, which is now in its ninth year, some informative comment may be apropos. The World Medical Association is a federation of the most representative national medical associations in each of fifty-two nations with these organizations representing more than 700,000 of the world's physicians, and the American Medical Association being a leading member. The association is seeking to uphold the ideals of conduct and concern for the welfare of mankind which is common to conscientious doctors of medicine wherever in the world they may be found.

It publishes a journal printed in three languages. It provides traveling physicians with introductions to their colleagues in other countries. It provides them an opportunity for meeting with their colleagues from other countries in the general assemblies held at various places in the world. Among its accomplishments are the promulgation in 1948 of the Declaration of Geneva, comprising a modern re-statement of the Hippocratic Oath, and contributing to the unity and solidarity of the profession throughout the world. In 1949 an International Code of Medical Ethics was adopted. It has striven on an international basis to counteract efforts of various nations and organizations to promote state medicine under social security programs. We find that many of the efforts which the medical profession is putting forth through the A.M.A. in our own country is being done by the World Med. Ass'n. on an international scale.

Every individual physician in the United States is eligible for membership in the United States Committee and may obtain further information by addressing the Secretary-Treasurer of the United States Committee, Dr. L. H. Bauer, at the World Medical Association, 10 Columbus Circle, New York 19, New York. In the interest of furtherance of an international understanding among the members of the medical profession, and the furtherance of aims, interests, and ideals common to and cherished by us all, we urge you to join. R.L.F.



## AN INTERNIST LOOKS AT THE STATE INDUSTRIAL COMMISSION

A PHYSICIAN practicing internal medicine is little associated with the problems that arise in industrial practice. Recently decision by the State Industrial Commission to accept certain diseases in the field of internal medicine as resulting from the work of the individual, have brought the Industrial Commission into much sharper focus from the internist's viewpoint. It has been common practice to accept cases of coccidiomycosis as being related to the occupation of the individual. Recent decisions by the Industrial Commission to include myocardial infarction suffered in the pursuance of the usual occupation has been far more difficult to understand.

There are two problems that arise with the acceptance of these cases as being related or due to a man's occupation. One is that it is extremely difficult to see how they rationalize the etiology of coronary thrombosis as being due to work. Secondly, the fee that is paid to the internist for the care of such a disease as myocardial infarction is wholly inadequate and is not sufficient to pay a physician's overhead for the time spent.

Recently a colleague was involved in the treatment of such a myocardial infarction in which the entire fee for the month of hospitalization was \$65.00. It is obvious that this is a ridiculously low figure. Then to add insult to injury there are innumerable forms that must be provided to the Industrial Commission. A myocardial infarction is a serious medical illness and its proper care requires as much skill as any other procedure in the field of medicine or surgery. In looking at the schedule sheet of returns, it is easy to find several operative procedures that are compensated at the rate of \$300.00. It is not my intent to say that these procedures are not worth this figure. In fact, the fee schedule is far lower in the Industrial Commission than our like-surgical fees provided by private insurance companies.

Another point that would emphasize the ridiculous fee rate of the Industrial Commission is the fee for consultation on seriously ill patients by an internist. In the past year I have personally seen two such cases. Both have been complicated illnesses requiring much time

and thought and in each case, my compensation was \$12.50 which actually on an hourly rate is considerably less than the present plumber's code in the State of Arizona.

As one talks to his medical colleagues it is obvious that it is not only the internist that is dissatisfied with the present level of the Industrial Commission fees, but this dissatisfaction is extremely widespread in the medical profession and includes many people of the orthopedic group, general surgeons, neurosurgeons, general practitioners, etc. The difficulty in understanding the very low fee rate is that the Industrial Commission is an insurance carrier and can so adjust its fee schedule to provide adequate remuneration for the time of the physician.

It is my opinion that a serious effort should be made to overhaul the fee schedule of the Industrial Commission of Arizona to a level that will permit a return to the physician equal or slightly greater than that allowed at this time for plumbers.

E.E.Y.

## A MARTYR TO SCIENCE UNDERGOES 90th OPERATION

IT IS seldom, if ever, that anyone can refer to a physician as a "hero" or as "a martyr to science."

It can be done unhesitatingly, however, in referring to Dr. Emil H. Grubbe, 81, of 1205 West Sherwin Avenue, Chicago.

He underwent his 90th operation for cancerous burns suffered more than 50 years ago when he pioneered as the world's first scientist to use x-rays for human therapy. Last week surgeons removed his nose and most of the right side of his face. Previously he had lost his left hand, his upper lip and jaw.

Dr. Grubbe was only 20 when he employed X-rays to treat a Chicago woman suffering from breast cancer. The historic event took place on January 29, 1896 at the old Hahnemann Medical College where he first taught as a physicist and later graduated as a physician. The date was only a few months after Roentgen announced the discovery of "the mysterious rays."

Dr. Grubbe's original X-ray tubes, the first ones used for therapeutic purposes, are preserved and exhibited in the Gallery of Medical History at the Smithsonian Institution.

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## 1957 ANNUAL MEETING PRELIMINARY PROGRAM

Wednesday, April 10

- 10:00 A.M. Council Meeting
- 12:30 P.M. Council Luncheon
- 2:00 P.M. Blue Shield Annual Corporation Meeting (House of Delegates)
- 6:30 P.M. Reception
- 8:00 P.M. Buffet Supper

Thursday, April 11

- 8:00 A.M. House of Delegates — First Session
- 9:30 A.M. General Session — Opening
- 10:00 A.M. Scientific Session:
  1. Panel — "Backache"
    - Henry D. Brainerd, M.D. (I-Ped)
    - Leon Goldman, M.D. (S)
    - Albert G. Bower, M.D. (I)
    - Raymond R. Lanier, M.D. (R)
    - Joseph C. Risser, M.D. (Or)

2:00 P.M. Scientific Session:

1. "Present Status of Chemotherapy"
  - Henry D. Brainerd, M.D.
2. "The Threat of Strangulation in Acute Intestinal Obstruction"
  - Leon Goldman, M.D.
3. "Roentgen Diagnosis of the Commonplace Arthritides"
  - Raymond R. Lanier, M.D.
4. "Diagnosis and Treatment of the Great Simulator, Infectious Mononucleosis"
  - Albert G. Bower, M.D.
5. "Management of Acute Anuria"
  - Joseph H. Holmes, M.D.
6. (To be announced)
  - Joseph C. Risser, M.D.

6:30 P.M. Reception

Friday, April 12

9:00 A.M. Scientific Session:

1. "Diagnosis of Acute Chest Pain"
  - Henry D. Brainerd, M.D.
2. "Jaundice"
  - Philip Thorek, M.D.
3. "Recent Advances in Surgery of the Gastrointestinal Tract"
  - Leon Goldman, M.D.
4. "Treatment of Mumps and Its Complications in the Adult Male"
  - Albert G. Bower, M.D.
5. "Office Gynecology"
  - N. Paul Isbell, M.D.
6. "Early Clinical Differentiation of Benign, Pre-malignant, and Malignant Cutaneous

Neoplasms"

Donald J. McNairy, M.D.

2:00 P.M. Scientific Session:

1. "AMA and Its Stand on Accreditation"
  - Dwight H. Murray, M.D.
2. "Only an Appendix"
  - Phillip Thorek, M.D.
3. "The Diagnostic Roentgen Findings in Study of the Acute Abdomen"
  - Raymond R. Lanier, M.D.
4. "Medical Management of Patients with Recurring Renal Calculi"
  - Joseph H. Holmes, M.D.
5. "Examination of the Patient for Carcinoma"
  - N. Paul Isbell, M.D.
6. (To be announced)
  - Joseph C. Risser, M.D.

6:30 P.M. Reception

8:00 P.M. President's Dinner Dance

Saturday, April 13

8:00 A.M. House of Delegates — Second Session

9:30 A.M. Scientific Session:

1. Panel — "Post-Operative Care"
  - Philip Thorek, M.D. (S)
  - N. Paul Isbell, M.D. (ObG)
  - Joseph H. Holmes, M.D. (I)
  - Ashton B. Taylor, M.D. (Ca)

1:00 P.M. Annual Handicap Golf Tournament  
SPECIALTY GROUP MEETINGS

Thursday, April 11

12:30 P.M. Arizona Pediatric Society

"Management of Infectious Diseases of the Central Nervous System:  
Henry D. Brainerd, M.D.

Friday, April 12

12:30 P.M. Arizona Academy of General Practice

"Future of Medicine"  
Dwight H. Murray, M.D.  
(To be announced)  
Philip Thorek, M.D.

Date Undetermined

12:30 P.M. Arizona Arthritis Association

"Treatment of the Rheumatoid Diseases" — panel

Arizona State Society of Anesthesiologists  
Arizona Chapter, American College of Chest Physicians

Arizona Heart Association

Arizona Chapter, Western Orthopaedic Association

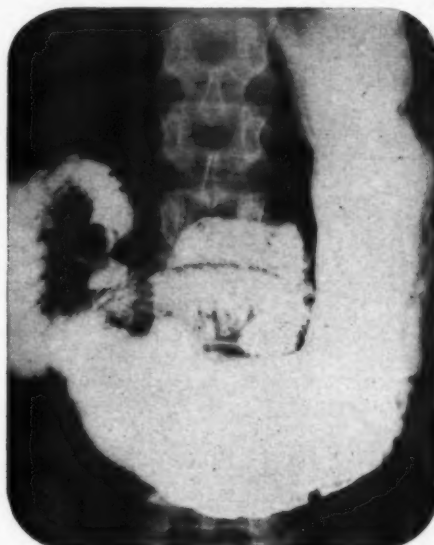


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SEARLE

**"Roentgen Demonstration of Unusual Fractures"**

Raymond R. Lanier, M.D.

Arizona Radiological Society  
Arizona Chapter, American College of Surgeons

**"The Injured Common Duct, Prevention and Correction"**

Philip Thorek, M.D.

**"Getting the Surgeon Ready for Surgery"**

Leon Goldman, M.D.

cal Association, member of the Mayo Foundation Alumni Association, member of the American Academy of Dermatology, and consultant in dermatology to Williams Air Force Base Hospital.

### 1957 ANNUAL MEETING

**I**NTRODUCING N. Paul Isbell, M.D., Associate Clinical Professor of Obstetrics and Gynecology at the University of Colorado School of Medicine, Denver.

Doctor Isbell received his doctor of medicine degree from the University of Colorado School of Medicine in 1930. He was research associate in pathology at Harvard University School of Medicine in 1947, and has served for four years in the army air force. Currently he serves as Associate Clinical Professor of Gynecology and Obstetrics at the University of Colorado School of Medicine; Chief of Division of Gynecology and Obstetrics at Denver General Hospital Branch of the University; and is a practicing gynecologist in Denver. He is a diplomate of the American Board of Obstetrics and Gynecology, fellow of the American College of Surgeons, and fellow of the International College of Surgeons.

Introducing Donald J. McNairy, M. D., dermatologist from Phoenix, Arizona.

Doctor McNairy graduated from the University of Wisconsin and received his doctor of medicine degree from Louisville University School of Medicine in 1939. He served a fellowship in dermatology at the Mayo Clinic and was junior consultant in the Department of Dermatology at the Mayo Clinic from 1943-44. Doctor McNairy was Medical Officer in Charge of the United States Public Health Service Hospital at Charleston, West Virginia. Following two years in the armed services, he engaged in private practice in Fort Wayne, Indiana, and during the past three years in Phoenix. He is a diplomate of the American Board of Dermatology, a member of the American Medi-



N. Paul Isbell, M.D.



Donald J. McNairy, M.D.



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## *The History of Medicine in Arizona*

### EARLY DAY MEDICAL PRACTICE IN WILLIAMS, ARIZONA

DERMONT W. MELICK, M.D.

**M**Y FATHER, Dr. P. A. Melick, practiced in Williams, Arizona from 1895 to 1934.

His introduction to Williams began in an unusual manner when he was accused of practicing medicine without a license. This particular circumstance occurred when he stopped to see some of his old Missouri friends (his destination was California). In the process of his visit my father was asked to examine a sick man and suggest treatment. This he did as an act of friendship rather than in the capacity of a physician. This mistake was soon brought to his attention when he was called before the local police magistrate and confronted with a complaint to the effect that he had been practicing medicine in the Territory of Arizona without a license. This action, initiated by the local physician, made my father vow that he would obtain an Arizona license and return to Williams and show the complaining doctor "who could or could not practice in Williams." Thirty-nine years later both doctors were still practicing medicine in Williams and were the best of friends.

Williams in those days was a tough little Western village. The population was small. The drinking ability was large. There were seventeen saloons in the town. The Saginaw and Manistee Lumber Company had hired a number of large, husky, raw-boned Swedes to man the hand saws used in the woods. These Swedes not infrequently imbibed excessively when they came to town. One particular night my father had to convince one of these drunken Swedes that the hospital was not a hotel. He was twice informed he could not get a room there for the night. The Swede returned a third time at two o'clock in the morning determined to "get a bed even if the doctors did insist it was a hospital." The front door was locked and he attempted to unhinge it by main force. This created a bit of noise. My father heard the commotion and immediately recognized the source as the same inebriated Swede. He decided the time had come for action instead of words. He opened the front door, gave the Swede a good solid punch between the eyes which knocked him sprawling into the street.

This convinced the Swede he was not being properly welcomed and he took off down the street at an erratic but rapid gallop. Dad was in his pajamas and bare feet, but for some reason he chased after him. In those days the trees had been cut down in the streets of Williams, but the stumps had not been removed. Dad stumbled over one of these stumps in the dark and abruptly sat down to nurse a broken toe. The Swede continued on his hasty retreat.

Transportation in Williams in the early days was usually by horse, wagon, or buggy. When any new mechanical conveyance came along my father was only too glad to abandon the horses and accept the mechanical transportation despite the fact that it was often less reliable than a horse. He bought one of the first motorcycles and used it to make his sick calls. The neighborhood dogs were often vicious and they made his rounds unpleasant because of their attempt to bite him as he rode by. He solved this situation by obtaining a small pistol grip squirt gun. A squirt of ammonia water from this gun soon diverted the dogs into other less painful pursuits.

One of the really long trips my father took as soon as he had confidence in his motorcycle was the 64 mile trip to the Grand Canyon. He made this trip around 1909. His picture was taken on the rim of the Grand Canyon. It proved to be of mild historical interest as it was the first time a motorcycle had been ridden to the Grand Canyon. The photograph was preserved and a copy is presented herewith.





Another episode had to do with a breech delivery in the home. I cannot recall why the woman was unattended by neighbors, husband or anyone else, but the event was strictly between the pregnant woman at term and her attending physician, my father. In those days it was not uncommon for women to participate in the event by self administration of ether using a heavy bi-nasal metal ether "inhaler." When the ether reached such concentration as to anesthetize the patient and cause relaxation, the heavy inhaler would automatically drop away from the patient's nose. The patient was trussed up in a proper position for delivery by using bed sheets. These were passed around the thighs and looped over the bed posts in order to accomplish flexion and abduction. With the help of this improvised sling plus the aforementioned anesthetic equipment and a kerosene lamp, the delivery was accomplished successfully.

A typhoid epidemic started at one of the lumber camps when the drinking supply became contaminated. The "bed capacity" of the small hospital in Williams at the time was ten patients. Twenty-one cases of typhoid were hospitalized. Army cots were used to supplement the shortage of beds. This called for a great deal of attention on the part of both my father and mother. The food item may not have been important in view of the prevailing therapy for typhoid, but the ordinary "nursing" care in such cramped quarters presented a problem. I vaguely remember receiving the usual routine typhoid shots. They were received with a lack of appreciation.

One particularly interesting case my father liked to describe was of a severe necrotizing infection of the anterior one-half of the thorax. The skin and subcutaneous tissue sloughed away leaving a very large raw surface. The only grafting that my father knew about was pinch grafting. He believed this enormous area demanded a covering in a more rapid manner. To do this he used "skins" removed from boiled eggs and applied them over the raw surface. Pinch grafts were interspersed between these "skins." The patient recovered. This unique method did not find favor with my economically minded mother as she found her larder in an over supply of hard boiled eggs.

A doctor's wife must have a sympathetic ear and a quiet tongue. It would be remiss to

describe any experiences in my father's practice in the early days of northern Arizona without paying tribute to my mother. She was a school teacher before marriage and had accumulated \$1200. This nest egg was used to help finance the building of the Williams Hospital in 1898. During the forty years the Williams Hospital was in existence, the greater portion of the menial work that kept the hospital "in working order" rested squarely on her shoulders. She worked long hard hours at many tasks. She was "chief cook and bottle washer." She was secretary and nurse. She lived the adage "woman's work is never done." My father worshiped her with a rare devotion that in retrospect adds luster and a deep sense of contentment to the visual images that arise in the recounting of these past episodes.

On one particular occasion, my father was involved in a wreck, his car being struck by a railroad train, which resulted in a basal skull fracture and a fracture of the right clavicle. His condition was critical and the physician in attendance at that time, Dr. C. D. Jeffries, decided consultation was necessary. My father had great admiration for Dr. E. Payne Palmer, Sr., and Dr. Jeffries asked him to come from Phoenix to Williams in consultation. My father made a slow recovery. He eventually became aware of the fact that Dr. Palmer had seen him in consultation. He sent him a check for \$150. Dr. Palmer immediately returned the check with a little note to the effect that such financial obligations between medical colleagues was unheard of and he would not accept the check. My father again sent the check to Dr. Palmer. How many times this check was exchanged between Phoenix and Williams, Williams and Phoenix, I cannot say, but I believe it became so "dog-eared" that Dr. Palmer finally put an end to it by tearing it up and throwing it in the wastebasket.

One stormy Christmas Eve a call was received from Anita, Arizona, (40 miles north on the Williams-Grand Canyon Highway). An anxious mother made the request that my father come to Anita as soon as humanly possible in order to see her very sick child. An unusually heavy snow had fallen and the road to Anita was hazardous. The choice was to go by automobile or by a "speeder" belonging to the Santa Fe Railroad. The "speeder" had no protection from the weather and any forty

mile trip on such a conveyance was impossible in cold weather unless one happened to have the resistance of a polar bear. At eight o'clock on this Christmas Eve the trip was undertaken by auto. At the last minute my mother decided to accompany my father. Four hours later at a point five miles from Anita, the car stopped for no apparent reason. The question then arose whether to stay with the car or attempt to walk to Anita. Dad decided they should go on to Anita. It was then found that my mother had forgotten to put on her galoshes in the rush of her last minute decision to accompany my father on this "call." Dad gave her his galoshes. They were much too big and so cumbersome that walking was difficult. They walked one-half mile across country in deep snow to the railroad and then for five miles along the railroad to the Anita Station. It would be a dramatic conclusion to state that he arrived at the Section House just in time to save the child's life, but this is far from the fact. Between the time of the original telephone call and the arrival at the Anita Station House, the child had completely recovered from its "serious illness" and the need for medical services were no longer apparent. A touch of ironic comedy could have been added to the situation if the mother had opened the door when my father and mother arrived and said, "Everything is all right now Doctor, we don't need you." My mother in commenting about this experience did not minimize the danger of the long hard walk in the snow, but she seemed to be critical of the actions of my father. She stated, "walking in those oversize galoshes was had enough but on top of that your father tried to be funny. Every so often he would get out in front of me and say climb on my back Cora and I will carry you."

As far as my impressions with regard to my father as a doctor are concerned, it is now apparent to me that he possessed the ideal bedside manner so often ascribed to the family physician. I still vividly recall the deep sense of relief I experienced whenever he entered my sick room. It was characteristic of him to come to the bedside and gently grasp my wrist to feel the pulse and at the same time extract a large pocket watch in order to determine the rate. If there is anything to the old adage about healing by the "laying on of hands" this memory makes me believe such a thing is possible.

## SCIENTIFIC MEETING OF THE AMERICAN HEART ASSOCIATION Cincinnati, Ohio (October 1956)

By Wm. Butcher, M.D.

**A**NOTHER experimental approach to the problem of myocardial ischemia — direct anastomosis of an extracardiac vessel to the coronary artery (dogs) distal to the point of occlusion. Also a slightly different technic for implanting a capillary bed into the myocardium using intercostal muscle bundles containing artery, vein, and nerve (Thal).

More statistics of internal mammary artery transplantation — 85 patients with coronary artery insufficiency were reported to be relieved of anginal pain after internal mammary artery transplantation into the wall of the left ventricle. Surgical mortality of patients with no angina at rest was 3-6%; with angina decubitus, 45-50% mortality. Good results in 75% of cases with no angina at rest and in 21% of cases with angina decubitus. (Vineberg & Walker)

Surgical removal of a ventricular aneurysm has been successfully performed in 6 of 7 cases. In 5 patients the aneurysm developed from 4-12 months after an extensive anterolateral or posterolateral myocardial infarction. In 2 patients it followed direct trauma to the left ventricle. When secondary to myocardial infarction, congestive heart failure and paroxysmal arrhythmias were the major clinical problem. — An excisional procedure was used in each patient. Six of the patients recovered after surgery, and in these, compensation was restored, gallop rhythm corrected, and paroxysmal arrhythmias arrested. (Likoff & Bailey)

Beck and his followers continue to advocate the Beck operation or operations based upon the principles of the Beck operation for the development of intercoronary arterial communications by the heart as the result of various stimuli such as partial carotid sinus ligation, mechanical abrasion of the pericardium and epicardial surface of the heart, the application of 0.2 Gm. powdered asbestos. They claim reduction of pain and improved exercise tolerance in 9 out of 10 patients and increase in life expectancy.

Acetylcholine has been used to induce cardiac arrest during open heart surgery (pump-oxygenator system), thereby increasing the ease of correction of intracardiac defects. The hearts were easily restarted by perfusing the aorta and coronary arteries (Lam).

Calcium gluconate in dosage of 1 Gm. intravenously was shown to have a rapid and striking effect in augmenting the force of contraction of the failing heart. Calcium gluconate was successfully administered as the sole therapeutic agent in 7 consecutive patients with severe acute pulmonary edema due to hypertensive heart disease and acute myocardial infarction. Since the action of the calcium gluconate was brief, digitalis was administered immediately after relief was obtained, to maintain cardiac compensation. (Gubner and Kallman)

Electrocardiograms, preoperative and postoperative, of patients 45 years of age or older, are helpful in detecting postoperative myocardial infarction, because the clinical course is frequently atypical and may go unrecognized. (Kahn & Calabresi)

Lipoprotein (S-f 12-20 and S-f 20-100) measurements were NOT found to have the unique diagnostic value which has been claimed for them. The level of serum cholesterol was a somewhat better index of the presence of coronary artery disease than were either of the lipoprotein measures. (Mann)

Hot and humid environment was shown to be a strong stimulant to cardiac output, stroke volume, and work, both in normals and in patients with congestive heart failure even at rest. (Burch & Hyman)

Data was presented to indicate that in dogs with coronary arterial narrowing, exercise is a significant stimulus to collateral growth. (Eckstein)

A method for measuring oxygen tension of tissues *in vivo* was described. The method has the advantage of a fine-pointed electrode that can be inserted into the tissue; the flow of electric current is proportional to the rate of delivery of oxygen from the tissue to the electrode. (Montgomery)

Left heart catheterization was reported by several groups of investigators to be helpful in the evaluation of aortic and mitral stenosis. Simultaneous left and right heart catheterization studies were said to permit identification of the cause of existing pulmonary hypertension (i.e., left ventricular failure, or mitral stenosis with block, or increased pulmonary vascular resistance).

The Lewis A. Conner Memorial Lecture was given by Dr. Jesse Edwards, pathologist. He discussed at great length the role of the pul-

monary vascular tree in congenital cardiac disease. A summary of his remarks follow.

In the presence of a free communication between the ventricles or great arteries, and of pulmonary stenosis also, the structure of the pulmonary vascular bed is essentially normal and its functional response is evidently normal. However, if there is no pulmonary stenosis, thick muscular medial coats in the small pulmonary arteries are present. This condition correlates with the functional feature of a high resistance to pulmonary flow. The high resistance is a governing factor in the direction and magnitude of shunts across the abnormal communication. Pulmonary hypertension is an associated condition.

Obstruction to pulmonary venous flow likewise results in hypertrophy of the medial coats of the small pulmonary arteries and a high arteriolar resistance to flow. Pulmonary arterial hypertension may develop.

Simple muscular medial thickening seems to be associated with a readily changeable response on the part of the pulmonary vascular bed. In time the associated pulmonary hypertension may be complicated by intimal lesions that cause anatomic occlusion of lumens. This condition is followed not only by an intensification of the high degree of pulmonary vascular resistance but also by loss in the flexibility of response. (finis)

In other papers, these observations of Dr. Edwards assumed particular significance in relation to the mortality rate of surgical repair of ventricular septal defects:

In the presence of a pulmonary artery pressure greater than 70% of the aortic pressure, the mortality rate was about 55%, in contrast to a mortality rate of less than 10% if the pulmonary artery pressure was less than 70% of the aortic pressure (University of Minnesota). The suggestion was made that in patients showing nearly balanced pulmonary artery and systemic pressures, lung biopsy might be considered as a preliminary procedure which is justified to avoid major surgery with little hope of survival. No patients survived surgery whose lung biopsy specimens showed 5 or more vessels with intimal proliferation per cm.<sup>2</sup> In those patients whose biopsy specimens showed 3 to 5 vessels with intimal proliferations per cm.<sup>2</sup>, only half survived surgical closure of the



ventricular septal defect. (University of Minnesota)

DuShane & Kirklin (The Mayo Clinic), however, reported somewhat different criteria for selection of symptomatic patients with ventricular septal defects for surgical repair. Operation was recommended for those patients having increased pulmonary flow in spite of the degree of pulmonary hypertension or the presence of a right-to-left shunt. If the pulmonary flow was less than the systemic, surgical intervention was not recommended. Thus, selection of candidates for operation depended on proper assessment of the dominant intracardiac shunt. Criteria of importance are cardiac hyperactivity, X-ray signs of increased pulmonary blood flow, electrocardiographic evidence of increased left ventricular work, and the determination of intracardiac hemodynamics by cardiac catheterization, studies of arterial oxygen saturation and dye-dilution curves.

### CRASH RESEARCH

**T**HE ARIZONA State Committee on Trauma of the American College of Surgeons, with the cooperation of the Greater Tucson Safety Council, arranged for the showing of two films to Tucson High School students registered for the Driver Training program. These films are "The Search," put out by CBS, and "Crash Research," produced by the Ford Motor Company. H. P. Limbacher, M.D., 116 No. Tucson Blvd., Tucson, can obtain these excellent films for showing elsewhere.

### NEWS NOTICE

**O**N NOVEMBER 14 and 15 the Arizona State Medical Association representatives met with the Army representatives of the Defense Department in Washington to negotiate the contract for operation of Medicare in Arizona.

Association members attending were A. I. Podolsky, President, F. W. Edelman, Chairman Medicare Committee, Paul Jarrett, Member Medicare Committee, along with Robert Carpenter, Executive Secretary and Edward Jacobson, Association Attorney and L. Donald Lau, Executive Director of Blue Shield, the fiscal agent.

## Book REVIEWS

**THE PERSON BEHIND THE DISEASE** by Julius Bauer, M.D. 136 pages. (1956) Grune & Stratton. \$3.50.

In an unusual monograph Dr. Bauer discusses the art of treating the patients rather than the diseases. From more than 40 years of clinical experience, he discusses consideration of the genetic, constitutional, and psychologic makeups of patients relative to their medical problems. The author is a Clinical Professor of Medicine, College of Medical Evangelists.

Stacey's Medical Books, San Francisco

**HANDBOOK OF MEDICAL TREATMENT** by Milton J. Chatton, M.D., Sheldon Margen, M.D., and Henry Brainerd, M.D. 5th ed. 571 pages. (1956) Lange. \$3.

Readers of these reviews will have noted that no volume is tagged a "must" book. Here, however, is one that every practicing physician ought to have in his bag, a wonderful compendium of concise and useful information. It would be a bargain at twice its price.

Stacey's Medical Books, San Francisco

**CLINICAL HEMATOLOGY** by Maxwell W. Wintrobe, M.D. 4th ed. 1184 pages. Illustrated. (1956) Lea & Febiger. \$15.

Advances have been made in so many areas of hematology within the past few years that Dr. Wintrobe has found it necessary to add to, rewrite, and revise in all divisions of the text. New chapters have been added on blood groups and blood transfusion, and on the abnormal hemoglobin syndromes. Chapters or sections which have been rewritten include those on the production and destruction of red corpuscles, coagulation, hemolytic anemias and hemorrhagic disorders. Many other chapters have had extensive revision. There are 23 new helpful tables, numerous new illustrations and 1600 new references. To quote the Journal of the A.M.A., "The best . . . retains the preeminence established by its predecessors and remains the best available book for both hematologists and internists." (January 12, 1952:156 from a review of the previous edition).

Stacey's Medical Books, San Francisco

(Continued on Page 38)

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**REFERENCE:** 1. Silcox, L. E., A.M.A. Arch. Otolaryng. 60:431, Oct. 1954.

# TOPICS OF *Current Medical* INTEREST

## RX., DX., AND DRS.

By GUILLERMO OSLER, M.D.

**A** DRAMATIC use of a hydrocortisone ointment has been described in the Archives of Industrial Health (A.M.A.) 'Neo-Cortef' has been applied to swollen and bruised fingers for relief of pain and to prevent inflammation. . . . It is said that the effects begin in **two minutes**, and the swelling is markedly reduced in 6 to 48 hours. . . . The authors (McLaughlin and Schector) should know about such injuries, since  $\frac{1}{4}$  of the 38,000 calls per year in their first-aid station are for finger and hand injuries. . . . We intend to try it, and we suspect it may also be of value in burns, tho we have not seen such a report.

Each of us physicians/citizens must be embarrassed to read the following — "CIVIL DEFENSE strategy is in for a major overhauling." Etc. . . . If there is a possible need for civil defense (as there surely is) there should be preparations and precautions. They shouldn't be voluntary, and partial, and possibly ineffective; they should be universal and regular and certain. . . . The medical angles should be updated and prepared, just like all the other aspects. Then we may be less embarrassed at a future time.

There are many people who knew Dr. Vivian Tappan during the years when she was a noted pediatrician in Tucson. She spent many of her summers directing the pediatric out-patient service at Johns Hopkins. Many of her patients in Tucson were referred by famous eastern physicians. She would make no compromise with inefficiency, expediency, or expense. . . . It is good to hear that she is back in a practicing position. She is now assistant director of pediatrics at Yale, the head of a new cystic fibrosis clinic.

We should give a loud "Ole!" for two different medical treats. First, the notice that BLUE SHIELD will provide extra benefits is good news. . . . Second, the 'HISTORY OF MEDICINE' section in ARIZONA MEDICINE is a very good idea. Several journals have such a section. Arizona's medical history is so recent, comparatively, that it can be readily found by the historians, and lots of it from first-hand sources. We have a fine chance to know about our heroes, our average predecessors, and even our scoundrels. The last-named did some rootin', and even some shootin'.

Where was the Land of the Lotus Eaters? Was it in the northeast Mediterranean? Is it a village near Phoenix? Or is it the patients who take the Winthrop Lab's new butylbarbiturate, called

'Lotusate'? . . . They hit the jackpot on that name, no matter how well the drug works (and it is said to be of value as a sedative, or in larger doses, as a hypnotic).

A couple of years ago we mentioned the startling number of GRADUATES OF FOREIGN MEDICAL SCHOOLS who were licensed to practice medicine and surgery in Ohio. . . . Again we have seen the list in the Ohio State Medical Journal and again it is amazing. Seventy-two of the list of 392 were graduated from schools in just about every foreign country. . . . Ohio must really be able to integrate, tho one would suspect an occasional attack of social indigestion.

Dr. Alvarez wrestles with the problem of asthma and climate. He balances pollens, dryness, heat, wind, distance, livelihood, et al., and comes up with the conclusion that in some people, after a trial, and with the advice of a good allergist, sometimes 'yes'. . . . Perhaps he would write a more strongly favorable article during a Chicago midwinter day, with sleet underfoot, no sun overhead, the steam-heat drying out a respiratory tract loaded with the results of a 'cold' and house-dust, and barely over the effects of fall hay-fever. . . . The balance then would tip southwestwards, and by airplane.

CHEMOTHERAPY FOR TUBERCULOSIS is still not uniform down at the 'grass roots', which means me and you. . . . The V.A. and Trudeau meetings provide huge analyses, and some fairly definite conclusions on use of the drugs, a couple of times per year. There is some leeway, and some equality in various regimens, so that we all have a choice. . . . A 'show of hands' at a recent California Sanatorium meeting indicated that one third of the specialists present used streptomycin, another third dihydrostreptomycin, and the remainder used both. About two thirds used a 'dual drug' therapy (INH & PAS) for cases which had become inactive by x-ray and bacterial tests, and one third continued to use the 'triple drug' routine (including SM).

Do you feel 67? One hundred? A hundred and sixty seven? . . . Javier Pereira feels just fine, and the physicians at New York Hospital say he is in good condition. They also believe that he probably is 167 years of age, tho there is no certain way to tell the exact age of an adult. . . . We can't all be that old, but we can feel that way once in a while.

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It is good to see quotations from ARIZONA MEDICINE in another medical journal. A recent article by Dr. James Waring (on the treatment and CARE OF THE LONG-LIVED TB patient) has been quoted at length in GERIATRICS, which confirms a recent comment here that it is a solid and modish publication.

The same issue of that journal has an editorial by J. P. Warbasse of Woods Hole, Mass., on 'The Ultimate Adventure'. It is worth reading in toto, but a few excerpts will do for now — THE AGED NEED TO KNOW HOW TO DIE, to approach the great adventure with poise if not satisfaction. . . . The aged person should not have to ignore or turn away from the event as tho it were shameful or a subject for taboo. He should be free of discomforts — that is his doctor's duty. Then, there remains for him something to be found . . . there is the satisfaction of equanimity. . . . The sense of humor and spirit of waggy need not vanish too soon. . . . The person who has not feared life need not fear death. The intelligent do not fear sleep, but welcome it as a necessary oblivion at the end of the day. (The fear of death is a fantasy. Medieval artists pictured death as an excruciating fate. Religious believers and non-believers may approach the end with peace and assurance if they have reached a firm intelligent philosophical conviction.

Here we are with the 'shotgun' again — 1. 'Citra' (by Boyle & Co.) contains a decongestant, an antihistaminic, an analgesic, an antipyretic, an expectorant, and an agent to restore capillary function. . . . 2. 'Achrocidin' (by Lederle Labr.) is made up of the broad-spectrum antibiotic achromycin, an analgesic, an antipyretic, and an antihistamine. . . . We will soon be right back to the bulky prescriptions of 50 or 100 years ago, except that we have to remember only one name, and except that fewer of the ingredients are

useless or inert.

\* \* \*

California has a law which FORBIDS COMMISSION of persons with "harmless chronic mental unsoundness" to a State Hospital. Yet most of the state, except Los Angeles County, does so; there is no other way of caring for them, so the jurists break the law. . . . The amazing result is that one-third are dead within a year, and half of that group dies in the first 45 days. The newspapers report that this is not due to neglect, but to "a final shock to the tired old hearts of the elderly". It COULD simply be that they are not committed until that ill.

\* \* \*

Detection of the sex of an unborn child may be possible some day, but determination of the sex in adult cells is already possible. Barr and his colleagues have maintained that 'maleness' and 'femaleness' are transmitted by the fertilized ovum to the somatic cells. The cells of most tissues show the sex chromatin, and it is peculiarly present in female cells. The neutrophils of the blood and the cells of the skin are very good indicators, and very convenient for sampling. . . . This should be of value in deciding the sex of an hermaphrodite, and is. It has also been shown that cancer cells are the same sex as the patient.

\* \* \*

Dr. Marcus Crahan, a long-time medico-legal expert in Los Angeles, says the following sad quote — "The highways leading to SKID ROW'S dead-end street are poorly marked. There are no brake-testing stations except those of the courts — way down near the journey's end". . . . Along the same alcoholic line is the re-quote of Dr. Karl Bowman of San Francisco — "An alcoholic is hard to define. One might say that he is a person who cannot get along without alcohol, or with it".

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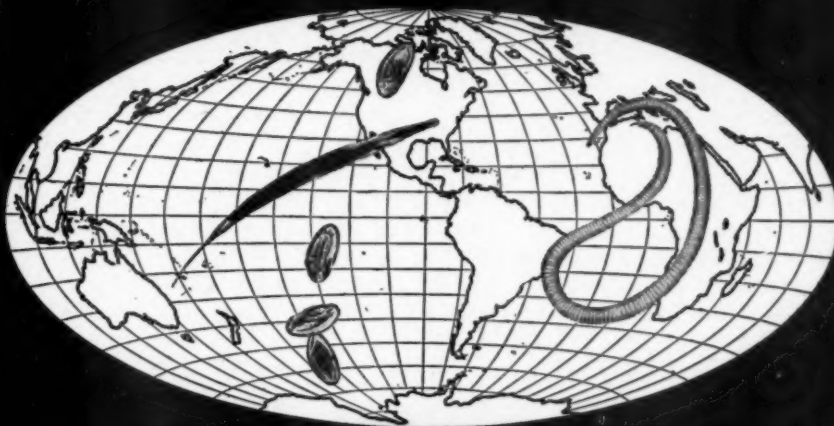
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## **TUBERCULOSIS LAWS AND REGULATIONS OPINION NO. 56-103**

REQUESTED BY: Arizona State Department of Health.

OPINION BY: ROBERT MORRISON, The Attorney General; H. B. Daniels, Assistant Attorney General.

QUESTION: In the enforcement of quarantine laws and regulations, particularly in regard to tuberculosis:

1. What is the responsibility of the health officer?

2. What is the responsibility of the county attorney and the courts?

3. What is the responsibility of the law enforcement officers?

4. How may the duties of these agencies be correlated to secure speedy, effective action in handling of tuberculosis cases?

CONCLUSION: 1. The health officer, particularly the tuberculosis control officer, is responsible for the enforcement of the quarantine laws.

2. (a) The county attorney is responsible for the prosecution of those who commit public offenses and the institution of proceedings before the magistrate for the arrest of the persons charged or suspected of public offenses when he has facts showing the offenses have been committed.

(b) The court has the duty of determining and imposing sentence according to the punishment prescribed by law.

3. It is the duty and responsibility of the sheriff to preserve the peace, arrest and take before a magistrate all persons who attempt or have committed public offenses and to prevent breaches of the peace.

4. All three agencies should co-operate when a patient has been arrested for violation of the quarantine measures to detain and isolate such person or persons until such time as it has been determined that he is no longer a hazard or dangerous to the public's health and safety.

The answer to the questions asked must be found within the statutes. The hereinafter quoted sections of the Arizona Revised Statute are cited for convenience:

Sec. 36-624. Quarantine and sanitary measures to prevent contagion

"When a local board of health or health department is appraised that infectious or con-

tagious disease exists within its jurisdiction, it shall immediately make an investigation. If such disease does exist, the board or department shall adopt quarantine and sanitary measures to prevent spread of the disease. The board or department may immediately cause a person afflicted with such disease to be removed to a separate house if in the opinion of the health officer, county superintendent of public health or director of the local health department, the person can be moved without danger to his health. If the person cannot be moved, the board or department shall make quarantine regulations and may cause the removal of persons in the neighborhood. The local board or health department shall immediately notify the state department of health of the existence and nature of the disease, and measures taken concerning it."

This section plainly imposes a duty upon the local health officer to see that an individual is isolated, if such person is infected with a contagious or infectious disease. Regarding the isolation of persons infected with tuberculosis, the Legislature has said:

Sec. 36-713. Declaration of policy

"A. It is the policy of the state to treat persons having tuberculosis in a communicable and contagious stage as dangerous to the health and welfare of the citizens of the state. It is also the policy of the state to declare that all cases of tuberculosis in a communicable or contagious stage should be isolated in an approved hospital, institution or nursing home, or at home if such home isolation meets the approval of the health officer and the tuberculosis control officer. To this end, it is declared that quarantine provisions to achieve isolation of such communicable or contagious tuberculous persons should be accomplished to the fullest extent regardless of such person's ability to pay. It is further declared that such persons with communicable or contagious tuberculosis shall be given full opportunity to enter isolation voluntarily. In order to prevent effectively the spread of this disease it is necessary that the state:

"1. Further the discovery, care supervision and treatment of persons having tuberculosis in a communicable or contagious stage.

"2. Encourage the use of all available public

and private facilities to that end.

"3. Regard this tuberculosis program as one of public health and one to be dealt with according to public health requirements rather than those of indigency."

In addition to the above quoted section, the Legislature provides as follows:

"A.R.S. Sec. 36-713 B. Tuberculosis is declared to be a communicable and contagious disease within the contemplation of the quarantine laws of the state only where such tuberculosis is in a communicable or contagious stage."

Clearly, the Legislature intended that the quarantine laws should apply to persons infected with tuberculosis in a contagious or communicable stage.

The Legislature, in Section 36-714, specifically made the tuberculosis officer responsible for the isolation of tuberculous persons.

For violation of a quarantine order or regulation the individual is liable criminally. A.R.S. Sec. 36-631 provides as follows:

"Sec. 36-631. Person with contagious or infectious disease exposing himself to public; penalty; exception

"A person who wilfully exposes himself to another afflicted with a contagious or infectious disease in a public place or throughfare, except in the necessary removal of such person in a manner least dangerous to the public health, is guilty of a misdemeanor."

Whenever a person commits this public offense, it is the duty of those in possession of such fact to convey that information to the county attorney. The county attorney has the duty then to institute proceedings before a magistrate for the arrest of such person charged with or suspected of such offense. See A.R.S. Sec. 11-532. It is further the duty of the county attorney to prosecute in behalf of the state the violator of such public offense.

The court has the responsibility of determining the guilt or innocence of the accused upon the law and the evidence submitted to it. The court shall determine and impose sentence according to punishment prescribed by law. A.R.S. Sec. 13-1642. When the punishment for a misdemeanor is not prescribed by law, the court may impose a jail sentence not to exceed six months, a fine not to exceed \$300.00, or both. A.R.S. Sec. 13-1645.

The sheriff is responsible for the arrest of

persons who attempt or have committed a public offense. This agency also has the responsibility of preventing breaches of the peace and generally preserving the peace. The sheriff also has the responsibility, after making an arrest, to bring the arrestee before the nearest magistrate in the county and to retain such prisoner in his custody until lawfully released. A.R.S. Sec. 11-441.

The Legislature has declared it to be a policy of this state that all cases of tuberculosis in a communicable or contagious stage **should be isolated**. It also declares that such persons with communicable or contagious tuberculosis should be given full opportunity to enter isolation voluntarily. It seems to us, that in order to make this policy effective, all of the several agencies must cooperate to protect the public health. It is apparent that there is no clear procedure provided for the handling of such patients. However, it appears to us that when the individual violates the quarantine law he has committed a public offense and that the county attorney should inform against such person and the sheriff should bring him immediately before a magistrate. The magistrate should make every attempt to detain the individual and assist in isolating him. We believe this to be the intent of the Legislature. Any other conclusion would make the provision of the Tuberculosis Control Act a nullity. If the individual who is being detained feels that his detention is wrongful, his remedy is by habeas corpus. This is the speediest method that we can suggest under the present status of the law.

ROBERT MORRISON

The Attorney General

H. B. DANIELS

Assistant Attorney General

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(Continued from Page 30)

**PRACTICAL OFFICE GYNECOLOGY** by Albert Decker, M.D., and Wayne H. Decker, M.D. 388 pages. 103 illustrations. (1956) Davis. \$10.50.

Practical and workable methods for diagnosis, management, and treatment are presented, backed by basic clinical gynecologic principles. This makes a good refresher course for practicing physicians.

Stacey's Medical Books, San Francisco

**HANDBOOK OF PEDIATRIC MEDICAL EMERGENCIES** by Adolph G. DeSanctis, M.D. 2nd ed. 389 pages. 73 illustrations. (1956) Mosby. \$6.25.

Chapters on metabolic emergencies, accident and poison prevention, genitourinary emergencies, and respiratory paralysis in poliomyelitis are new. Additions have been made to the list of household poisons. Considerable revising has been done. Although references are made to procedures used in other hospitals, the text presents those of the New York University-Bellevue Medical Center.

Stacey's Medical Books, San Francisco

**THE PATHOLOGY AND SURGERY OF THE VEINS OF THE LOWER LIMB** by Harold Dodd and Frank B. Cockett. 462 pages. Illustrated (1956) Williams & Wilkins. \$12.50.

R. R. Linton, M.D., in the foreword of this book says, "It is a pleasure to write this foreword for what is believed to be the best book available on this subject. The publication of it at this time certainly fills a definite need, and it is hoped that many surgeons now attempting this type of surgery will read it and digest its words with great care. The explanation of the pathological physiology of the various disorders are fundamental and lucid in all details. The surgical measures to correct them are carefully explained. The only criticism, perhaps, of the book is the fact that some of the methods described are not sufficiently radical to produce the best results, and it is predicted that in the next edition, especially in the handling of the chronic ulcers of the lower leg, a still more radical approach will be described, in order to interrupt additional communicating veins, than those described in the text."

Stacey's Medical Books, San Francisco

**HEAD INJURIES AND THEIR MANAGEMENT** by Francis Asbury Echin, M.D. 127 pages. (1956) Lippincott. \$3.

Of the many good monographs on brain injuries, most of them are too voluminous and appeal to the specialist. Here is a pocket book for practitioners, a welcome short summary of how to manage head injuries and to deal with both surgical and nonsurgical cases and complications. Special aids in diagnosis are considered. A short bibliography is included.

Stacey's Medical Books, San Francisco

**DISEASES OF THE BREAST** by C. D. Hagensen, M.D. 751 pages. 429 illustrations. (1956) Saunders. \$16.

Diagnostic methods, given detail, include dis-

cussions of medical history, palpation, retraction signs of nipple and areola, biopsy methods, and smears of discharges. Medical and surgical treatment is explained and illustrated for cancer of the breast, benign tumors, cystic disease, adenosis, fibrosis disease, mammary duct ectasia, and adenofibroma. The author's own effective technique for radical mastectomy is described point by point.

Stacey's Medical Books, San Francisco

**FRACTURES, DISLOCATIONS AND SPRAINS** by J. Albert Key, M.D., and H. Earle Conwell, M.D. 6th ed. 1168 pages. Illustrated. (1956) Mosby. \$20.

For nearly a quarter of a century this text has been an American standard for care of trauma of bone and joint. The present edition maintains the previously high degree of care in preparation. Modernized by both deletions and additions, selected methods are clearly and adequately described.

Stacey's Medical Books, San Francisco

**MEDICAL EFFECTS OF THE ATOMIC BOMB IN JAPAN** edited by Ashley W. Oughterson, M.D., and Shields Warren, M.D. 477 pages. Illustrated. (1956) McGraw-Hill. \$8.

Among the subjects discussed are: the simultaneous effects of the blast, heat, and ionizing radiation; and the factors influencing the catastrophe, such as surprise attack, terrain, layout of the cities, distance, shielding, density and distribution of the population, and the effects of medical care and facilities. Anatomic and histologic notes, case histories, and laboratory examinations are summarized, and the available clinical data on patients examined at autopsy are given for each group and subgroup.

Stacey's Medical Books, San Francisco

**PHYSICAL MEASURES IN THE TREATMENT OF POLIO-MYELITIS** by J. S. Reynolds. 140 pages. Illustrated. (1956) Macmillan. \$2.50.

Salk vaccine may be lowering the incidence of paralytic poliomyelitis, but such cases will probably always be with us. The fewer the patients the more need is there for attention to alleviation. This small English handbook gives directions for physiotherapeutic measures at all stages. It is derived from the files of one of England's largest hospitals caring for infantile paralysis.

Stacey's Medical Books, San Francisco

**DIABETES MELLITUS: Handbook for Physicians** by Howard F. Root, M.D., and Priscilla White, M.D. 346 pages. (1956) Blakiston-McGraw. \$7.

This handbook relates diabetes mellitus to general medicine, including obstetrics, pediatrics and surgery. Diabetic complications discussed include cardiovascular, renal, pulmonary, and ocular disorders associated with imperfect control of the disease. A discussion of the basic concepts stresses particularly the long-range objectives in treatment and the importance of adequate control of diabetes from its onset.

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### MEDICARE Public Law 569

**B**RIEFLY, the Chairman wishes to report that he first became acquainted with Public Law 569 on August 26, 1956 at a meeting in Denver, Colorado of regional western states pertaining to Medicare (Medical Care for Dependents of Active Uniformed Personnel of the United States Armed Forces, United States Geodetic Survey and United States Public Health Services).

After a thorough study at this Denver meeting which was attended by all the western states, a special Council meeting was held on September 23, 1956, at which time the Medicare Committee was established consisting of yours truly as Chairman, and Doctors Ernest A. Born, Carlos C. Craig, Hugh E. Dierker, John A. Eisenbeiss, Francis M. Findlay, George O. Hartman, Robert E. Hastings, Benjamin Herzberg, Walter T. Hileman, Paul B. Jarrett, Elvie B. Jolley, Harry B. Lehmsberg, Donald E. Nelson, Royal W. Rudolph, Stuart Sanger, Paul L. Singer, William B. Steen, Oscar W. Thoeny, Otto E. Utzinger, Vice Chairman, Charles E. Van Epps, James Volpe, Jr., and MacDonald Wood.

This special committee convened on Sunday, October 7, 1956, and a tentative fee schedule was set up and presented at a special Council meeting which was called on October 28, 1956. At this Council meeting, it was directed that Doctor A. I. Podolsky, President of the Association, Doctor Paul B. Jarrett, member of the Medical Economics Committee, Doctor Frank W. Edel, Chairman of the Medicare Committee, Mr. Robert Carpenter, Executive Secretary of the Association, and Mr. Edward Jacobson, attorney, legal counsel for the Arizona Medical Association, make the trip to Washington, D. C. on November 14, 1956 to negotiate, if possible, the contract for the Arizona Medical Association with the executive agent, namely the Department of the Army, for the medicare program. We were accompanied by Mr. L. Donald Lau, Executive Director, Arizona Blue Cross-Blue Shield. The Arizona Blue Shield had been previously designated at the first special Council meeting as Arizona's fiscal agent for this program.

I wish to review briefly this plan as it pertains only to the civilian medical care program, that is, the private doctor and his relationship to

the Medicare program in the State of Arizona. Briefly this is a service plan contracted between the Arizona Medical Association and the United States of America, Department of the Army as executive agent. Arizona Blue Shield is the fiscal agent, but we wish to emphasize that this has nothing to do with the present Arizona Blue Shield plan. We were successful in negotiating what your committee feels to be a very fair contract to all concerned. We may also re-emphasize that this is a renegotiable contract by either party on an annual basis beginning July 1, 1957 if we find that either party is being damaged in any way by the existing contract.

Those eligible for care by civilian doctors are (1) the immediate spouse, and (2) the dependent children. This is essentially an "in-hospital program". There are no provisions as yet for out-patient care, except for (a) fractures, (b) other traumatic injuries, lacerations, etc., and (c) prenatal and post-natal care. Study is going on at present, however, to see if in the future out-patient care may be included. This is still nebulous and very indefinite at present, however. It is the physician's responsibility to use reasonable means to be sure that those he cares for are eligible under the act. After July 1, 1957 identification cards will be given to all eligible families which will serve as a definite means of identification; however, in acute emergencies this provision may be waived at any time.

Fee schedules have been established which the Medicare Committee feels are quite fair to all concerned. These are obviously too lengthy to print in the Journal; however, a copy of this schedule will be mailed to all members of the Association by the Blue Shield in the very near future. It is important to realize that this law is effective December 7, 1956 and must be implemented by the contracting parties on that date beginning at 12:01 a.m. Any individual M.D. may refuse to join in this plan if he should so desire not to participate.

As regards the arbitration set-up over disputed claims, etc., it was decided by your Council that the members now serving on the professional committee of Blue Shield, with the addition of the Medicare program chairman, represent the Association at the present time as the arbitration board over any dispute or questionable claim for services rendered by

Association members. It is to be noted that in instances not fully covered by the printed fee schedule, a provision is made for special report on the part of the attending M.D., and they will be given proper and fair consideration.

Your Medicare Committee of the Arizona Medical Association does not feel that this is socialization of medicine, although your Chairman must confess that this was his first opinion of the act when he attended the Denver regional meeting; however, after considerable study of all factors involved, we feel it is basically a service-type insurance coverage similar to the numerous other such plans in existence through the unions and companies throughout the United States, except that in this case the United States of America is the underwriter, the Army is its executive agent, and John Doe, taxpayer, foots the bill. If we stop to realize that the average income of the armed forces personnel even including the 14% top brass is only approximately \$3300 yearly, the fairness of this coverage to the eligible dependents seems obvious. As long as we play fair as a group of M.D.s, I am sure the United States will be equally as fair. Remember that your State Association and its constituents basically are the ones that are in the control. By that I mean the doctor is still the doctor, and we are fundamentally controlling the program.

I, as Chairman of the Medicare Committee, wish to thank Doctor Podolsky, Doctor Jarrett, and Mr. Carpenter, for their conscientious, time-consuming and valuable efforts in working entirely as a team to negotiate a very satisfactory contract. I especially wish to give praise to Mr. Edward Jacobson for a most brilliant legal representation on behalf of the Arizona Medical Association, and to Mr. L. Donald Lau and his staff for their tedious and time-consuming work in helping outline these schedules and procedures both in many special meetings and at the Washington, D. C. meeting.

F. W. Edel, M.D., Chairman

**Public Law 569 — 84th Congress  
Chapter 374 — 2d Session  
H. R. 9429**

**AN ACT**

To provide medical care for dependents of members of the uniformed services, and for other purposes.

**Dependents' Medical Care Act.**

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Dependents' Medical Care Act".

**TITLE I**

**Purpose.**

Sec. 101. The purpose of this Act is to create and maintain high morale throughout the uniformed services by providing an improved and uniform program of medical care for members of the uniformed services and their dependents.

Sec. 102. (a) As used in this Act —  
"Uniformed services".

(1) The term "uniformed services" means the Army, the Navy, the Air Force, the Marine Corps, the Coast Guard, the Commissioned Corps of the Coast and Geodetic Survey, and the Commissioned Corps of the Public Health Service.

"Member of a uniformed service".

(2) The term "member of a uniformed service" means a person appointed, enlisted, inducted or called, ordered or conscripted in a uniformed service who is serving on active duty or active duty for training pursuant to a call or order that does not specify a period of thirty days or less.

"Retired member of a uniformed service".

(3) The term "retired member of a uniformed service" means a member or former member of a uniformed service who is entitled to retire, retirement, or retainer pay or equivalent pay as a result of service in a uniformed service, other than a member or former member entitled to retired or retirement pay under title III of the Army and Air Force Vitalization and Retirement Equalization Act of 1948 who has served less than eight years of active duty as defined in section 101 (b) of the Armed Forces Reserve Act of 1952.

62 Stat. 1087. 10 USC 1036-1036i and notes. 66 Stat. 481. 50 USC 901.

"Dependent".

(4) The term "dependent" means any person who bears to a member or retired member of a uniformed service, or to a person who died while a member or retired member of a uniformed service, any of the following relationships —

(A) the lawful wife;



- (B) the unremarried widow;
- (C) the lawful husband, if he is in fact dependent on the member or retired member for over one-half of his support;
- (D) the unremarried widower, if he was in fact dependent upon the member or retired member at the time of her death for over one-half of his support because of a mental or physical incapacity;
- (E) an unmarried legitimate child (including an adopted child or stepchild), if such child has not passed his twenty-first birthday;
- (F) a parent or parent-in-law, if the said parent or parent-in-law is, or was at the time of the member's or retired member's death, in fact dependent on the said member or retired member for over one-half of his support and is, or was at the time of the member's or retired member's death, actually residing in the household of the said member or retired member; or

(G) an unmarried legitimate child (including an adopted child or stepchild) who (i) has passed his twenty-first birthday, if the child is incapable of self-support because of a mental or physical incapacity that exists prior to his reaching the age of twenty-one and is, or was at the time of the member's or retired member's death, in fact dependent on him for over one-half of his support, or (ii) has not passed his twenty-third birthday and is enrolled in a full-time course of study in an institution of higher learning as approved by the Secretary of Defense or the Secretary of Health, Education, and Welfare and is, or was at the time of the member's or the retired member's death, in fact dependent on him for over one-half of his support.

#### Administration.

(b) Except as otherwise provided in this Act, the Secretary of Defense shall administer this Act for the Army, Navy, Air Force, and Marine Corps and for the Coast Guard when it is operating as a service in the Navy, and the Secretary of Health, Education, and Welfare shall administer it for the Coast and Geodetic Survey and the Public Health Service, and for the Coast Guard when it is not operating as a service in the Navy.

#### Utilization of medical facilities.

Sec. 103. (a) Whenever requested, medical care shall be given dependents who died while

a member of a uniformed service, in medical facilities of the uniformed services subject to the availability of space, facilities, and the capabilities of the medical staff. Any determination made by the medical officer or contract surgeon in charge, or his designee, as to availability of space, facilities, and the capabilities of the medical staff, shall be conclusive. The medical care of such dependents provided for in medical facilities of the uniformed services shall in no way interfere with the primary mission of those facilities.

(b) In order to provide more effective utilization of medical facilities of the uniformed services, the Secretary of Defense and the Secretary of Health, Education, and Welfare shall jointly prescribe regulations to insure that dependents entitled to medical care in a medical facility of a uniformed service under the provisions of this Act shall not be denied equal opportunity for medical care because of the service affiliation of the service member.

#### Charges.

(c) The Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare, shall establish fair charges for inpatient medical care given dependents in the facilities of the uniformed services, which charges shall be the same for all dependents.

(d) As a restraint on excessive demands for medical care under this section, uniform minimal charges may be imposed for outpatient care but such charges shall be limited to such amounts, if any, as may be established by the Secretary of Defense after consultation with the Secretary of Health, Education, and Welfare, under a special finding that such charges are necessary.

(e) Any amounts that are received in payment for subsistence and medical care rendered dependents in facilities of the uniformed services shall be deposited to the credit of the appropriation supporting the maintenance and operation of the facilities furnishing the care.

#### Limitations.

(f) Medical care under this section shall be limited to the following:

- (1) Diagnosis;
- (2) Treatment of acute medical and surgical conditions;
- (3) Treatment of contagious diseases;
- (4) Immunization; and



## (5) Maternity and infant care.

(g) 1) Hospitalization under this section is not authorized dependents for domiciliary care.

(2) Hospitalization under this section is not authorized dependents for nervous and mental disorders, chronic diseases, or elective medical and surgical treatments, except that the Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare, by regulation, may provide in special and unusual cases for hospitalization of not to exceed twelve months for dependents for such disorders or such diseases, or for such treatments.

(h) Dependents shall not be provided under this section —

(1) prosthetic devices, hearing aids, orthopedic footwear, and spectacles, except that outside the continental limits of the United States and at remote stations within the continental limits of the United States where adequate civilian facilities are not available, those items, if available, from Government stocks, may be provided to dependents at prices representing invoice cost to the Government;

(2) ambulance service, except in acute emergency;

(3) home calls, except in special cases where it is determined by the medical officer or contract surgeon in charge, or his designee, to be medically necessary;

(4) dental care, except —

(A) emergency care to relieve pain and suffering but not to include any permanent restorative work or dental prosthesis;

(B) care as a necessary adjunct to medical or surgical treatment; and

(C) outside the continental limits of the United States, and in remote areas within the continental limits of the United States where adequate civilian dental facilities are not available.

## TITLE II

### Spouses and children. Insurance plan, etc.

Sec. 201. (a) In order to assure the availability of medical care for the spouses and children who are dependents of members of the uniformed services, the Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare, shall contract for medical care for such persons, pursuant to the provisions of this title, under such insurance, medical service, or health plan or plans as he deems appropriate, which plan or plans shall, subject

to the provisions of section 204 hereof, include the following:

(1) Hospitalization in semiprivate accommodations up to three hundred and sixty-five days for each admission, including all necessary services and supplies furnished by the hospital during inpatient confinement;

(2) Medical and surgical care incident to a period of hospitalization;

(3) Complete obstetrical and maternity service, including prenatal and postnatal care;

(4) Required services of a physician or surgeon prior to and following hospitalization for a bodily injury or for a surgical operation;

(5) Diagnostic tests and procedures, including laboratory and X-ray examinations, accomplished or recommended by a physician incident to hospitalization.

For each admission the plan shall also provide for payment by the patient of hospital expenses incurred under paragraph (1) hereof in the amount of either (1) \$25 or (2) the charge established pursuant to section 103 (c) of this Act multiplied by the number of days hospitalized, whichever is the greater.

(b) Subsection (a) shall be subject to such reasonable limitations, additions, exclusions, definitions, and related provisions as the Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare, may deem appropriate, except that medical care normally considered to be outpatient care shall not be authorized by this subsection.

(c) The dependents covered under this section may elect to receive medical care under the terms of this Act in either the facilities of a uniformed service under the conditions specified in title I of this Act or in the facilities provided for under such insurance, medical service, or health plan or plans as may be provided by the authority contained in this section, except that the right to such election may be limited under regulations prescribed by the Secretary of Defense, after consultation with the Secretary of Health, Education, and Welfare, for such dependents residing in areas where the member concerned is assigned and where adequate medical facilities of a uniformed service are available for any such dependents.

### Review.

Sec. 202. Any insurance, medical service, or health plan or plans which may be entered

into by the Secretary of Defense with respect to medical care under the provisions of this Act shall contain a provision for a review, and, if necessary, an adjustment of payments by the Secretary of Defense or Secretary of Health, Education, and Welfare not later than one hundred and twenty days after the first year the plan or plans have been in effect and each year thereafter. Within ninety days after each such review, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and of the House of Representatives a report covering the payments made during the year reviewed, including any adjustment thereof.

**Report to Congressional committees.  
Advisory committees.**

Sec. 203. In order to effectuate the purposes of this title, the Secretary of Defense is authorized to establish insurance, medical service, and health plan advisory committees to advise, consult, and make recommendations to the Secretary of Defense, provided that the Secretary issues regulations setting forth the scope, procedures, and activities of such committees. These committees shall consist of the Secretary of Defense or his designee, who shall be chairman, and such other persons as the Secretary may appoint. Their members shall be, to the extent possible, representative of insurance, medical service, and health plan or plans, and shall serve without compensation but may be allowed transportation and per diem in lieu of subsistence and other expenses.

**Scope of plan.**

Sec. 204. The scope of medical care provided under this title shall not exceed the maximum care provided under title I of this Act.

**TITLE III**

**Medical and dental care.**

Sec. 301. (a) Medical and dental care in any medical facility of the uniformed services shall, under regulations prescribed jointly by the Secretaries of Defense and Health, Education, and Welfare, be furnished to all persons on active duty or active duty for training in the uniformed services.

(b) Medical and dental care in any medical facility of the uniformed services may, under regulations prescribed jointly by the Secretaries of Defense and Health, Education, and Welfare, be furnished upon request and subject to the availability of space, facilities, and capabilities

of the medical staff, to retired members of the uniformed services.

(c) Medical care in any medical facility of the uniformed services may, under regulations prescribed jointly by the Secretaries of Defense and Health, Education, and Welfare, be furnished upon request and subject to the availability of space, facilities, and capabilities of the medical staff, so dependents of retired members of the uniformed services and dependents of persons who died while a retired member of a uniformed service, except that any such care furnished such dependents shall be limited to the care authorized dependents of members of the uniformed services under title I of this Act.

(d) When a person receives inpatient medical or dental care pursuant to the provisions of this Act in a facility of a uniformed service that is not the service of which he is a member or retired member, or that is not the service of the member or retired member upon whom he is dependent, the appropriation supporting the maintenance and operation of the medical facility furnishing the medical care shall be reimbursed at rates established by the Bureau of the Budget to reflect the average cost of providing such care.

**Subsistence charges.**

Sec. 302. Commissioned officers and warrant officers, active and retired, shall pay an amount equal to the portion of the charge established under section 103 (c) of this Act that is attributable to subsistence when hospitalized in a medical facility of a uniformed service. Retired enlisted personnel, including members of the Fleet Reserve and the Fleet Marine Corps Reserve, shall not be charged for subsistence when hospitalized in a medical facility of a uniformed service.

**Additional hospitalization.**

Sec. 303. When a person who is covered under an insurance, medical service, or health plan or plans, as provided in this Act, requires hospitalization beyond the period of time provided under such plan or plans, if such hospitalization is authorized in medical facilities of a uniformed service, such person may be transferred to a medical facility of a uniformed service for the continuation of such hospitalization. Where movement to such medical facility is not feasible, the expenses for such additional

hospitalization required by such person in a civilian facility are authorized to be paid, subject to such regulations as the Secretary of Defense after consultation with the Secretary of Health, Education, and Welfare may prescribe.

#### Dependency determinations.

Sec. 304. All determinations made under this Act by the Secretary of Defense or the Secretary of Health, Education, and Welfare with respect to dependency shall be conclusive for all purposes and shall not be subject to review in any court or by any accounting officer of the Government, except for cases involving fraud or gross negligence. Such determination may at any time be reconsidered or modified on the basis of new evidence or for other good cause.

#### Appropriations.

Sec. 305. There are hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

#### Repeals.

Sec. 306. The following laws and parts of laws are hereby repealed:

(1) So much of the Act of July 5, 1884 (ch. 217, 23 Stat. 107), as is contained in the proviso under the heading "Medical Departments";

#### 24 US 32-36. Exception.

(2) The Act of May 10, 1943 (ch. 95, 57 Stat. 80), except section 4 of such Act, and except that part of section 5 which relates to persons outside the Naval Service mentioned in section 4 of such Act;

(3) Section 326 (b) of the Public Health Service Act, except as it relates to dependent members of families of ships' officers and members of crews of vessels of the Coast and Geodetic Survey;

#### 58 Stat. 697. 42 USC 253.

(4) Section 710 (a) of the Act of July 1, 1944 (ch. 373, 58 Stat. 714), as amended;

#### 63 Stat. 201. 10 USC 456-456-2 and notes.


(5) Public Law 108, approved June 20, 1949, to the extent it authorizes hospital benefits for dependents of members of the reserve components of the Armed Forces;

#### 34 USC 854f.

(6) Section 207 of the Act of June 25, 1938 (52 Stat. 1180).

#### Effective date.

Section 307. This Act shall become effective six months after the date of its enactment.

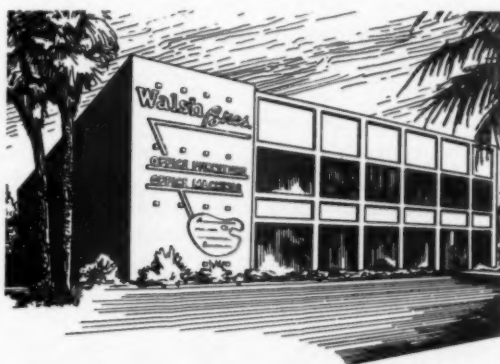


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## Notes From Desk Of The Executive Secretary

### MEDICARE PROCEDURES AND POLICY

**U**NQUESTIONABLY, many directives will issue providing more details on Medicare procedures and policy. To keep the medical profession informed, a few are listed below:

**IDENTIFICATION:** Military dependents may submit as identification their post exchange card, the combined post exchange-commissary-military medical care card, or the standard military dependent identification card. After next July 1 the only identification honored will be a special Defense Department medicare card.

**PAYMENT FOR DRUGS:** The Office of Dependent's Medical Care advises there are no plans for authorizing payment for drugs, medicals or other medical supplies, except those furnished while hospitalized or those administered directly by a physician.

**CLAIM FORMS:** The Government printing office is turning out large quantities of the claim form entitled "Statement of Services Provided by Civilian Medical Sources." They are being forwarded to the states as rapidly as possible and unquestionably you will be furnished with copies through the Association's fiscal agent.

**GENERAL:** It is intended that civilian medical care under the program will be comparable to that provided in armed services facilities. Physicians participating will receive payment in full from the Government in accordance with the published schedule of allowances or under a special report. IN MOST INSTANCES, THIS MEANS THAT THE DOCTOR WILL RECEIVE PAYMENT FOR HIS USUAL CHARGE OR THE AMOUNT SET IN THE SCHEDULE, WHICHEVER IS LESS. In instances in which the physician believes that an allowance greater than that prescribed in the local schedule is justified, he should look to the Government rather than the patient for payment. Provision is made for the doctor to submit a special report to his State Medical Society and in turn to the Government as a request for additional payment. Such payment will be made upon approval by the Society's review board and the Government contracting officer.

### SELECTIVE SERVICE CALL

Selective Service plans to call up 450 physicians next February, 250 of them for the Army and 200 for the Air Force. This is the largest single call since the Army, Navy and Air Force took 1,275 men in March, 1955. The draft call prior to the latest one was for 300 men in October, 380 men in July and 297 men in February — all of 1956. Since the program went into effect in 1950 at the time of the Korean War the special draft has brought 10,337 physicians into the services. Effort is being made to make sure that younger (under 37 years) priority 3 physicians in residency training who have been deferred are really essential to the operation of the hospitals. It is hoped that there is yet time to get a sufficient number of younger men reclassified into Class A-1 to satisfy these proposed calls without going into the upper age bracket.

The Doctor Draft Bill is scheduled to expire next July 1; it is indicated by the Defense Department it will propose another extension.

Robert Carpenter, Executive Sec'y.

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## MEDICAL SCHOOL SURVEY

By Dermont W. Melick, M.D.

**F**OR THE past few years, there has been a slow burning enthusiasm among some members of the Arizona Medical Association for establishment of a Medical School in Arizona. In order that enthusiasm be not supplanted by emotional thinking, the Arizona Medical Association decided to gather some facts for the membership. It is emphasized that the Arizona Medical Association is not, at this time anyway, promoting a Medical School for the state of Arizona. The function of the Medical School Committee of the Arizona Medical Association is to gather the facts in order that a mid-way point of understanding can be had for two groups. One group of our members are convinced that Arizona should have a Medical School established in the immediate future and are satisfied that a two year Medical School would be an adequate beginning. These individuals also believe that the ability to teach Medical School students lies well within the capability of a number of individuals within our Medical Association. There is another group of individuals who believe that Arizona is not ready for a Medical School within the foreseeable future because of the enormous expense and our small population. This second group also believes that teaching in a Medical School is a full time job and a Medical School in Arizona would require the importation, for the most part, of full time teachers for the Medical School.

It was soon obvious to the members of the Medical School Committee of the Arizona Medical Association that these two groups had one thing in common. The common denominator was the complete lack of facts upon which either group could base their contentions either pro or con. As ideas without facts have often led to action without reason it is doubly important that the Medical School Committee get the facts together for its membership.

The Medical School Committee has had two meetings, one in Phoenix and one in Tucson and to date have the following information to pass along:

1. The Western Inter-State Commission for Higher Education is conducting a survey entitled **MEDICAL MAN POWER REQUIREMENTS IN THE WEST**. This survey will take

approximately one year to complete, but when completed it will be all inclusive and will have the necessary facts for the citizens of Arizona, the Legislature, the leaders of our institutions for higher learning, as well as our own two groups in the Arizona Medical Association. This survey comes at an opportune time as the Legislature has exhibited an interest in the Medical School problem and this should relieve the Legislature from expending funds for a separate survey on the subject. The State of Arizona will be participating financially in this survey as a member of the Western Inter-State Commission for Higher Education.

2. Dr. John Z. Bowers, Dean of the University of Wisconsin Medical School and immediate Past Dean of the University of Utah Medical School, is expected to make an informal survey of the facilities at both Tempe and Tucson in the early part of 1957. We are receiving cooperation from the Arizona State College at Tempe through Dr. Grady Gammage and the University of Arizona at Tucson through Dr. Richard Harvill. Dr. Bowers, in his previous post at the University of Utah Medical School, understands the financial problems as well as the faculty problems in a state where the population is small and the financial resources limited.

3. Dr. Harold Enarson, Executive Director of the Western Inter-State Commission for Higher Education, will visit both Tucson and Phoenix in the early part of 1957. He will introduce the methods of study for the Western Inter-State Commission for Higher Education. He will also present some basic factual data with regards to establishment of a Medical School whether it be here or some other state.

4. A questionnaire has gone to all members of the Arizona Medical Association in order to determine what, if any, teaching experience the members of our Association have had in the past. It will also determine the number of those who are willing to assist in teaching in case they are asked to do so.

The four points above enumerated will give us facts, opinions and statistics and from them it is hoped the Medical School Committee of the Arizona Medical Association can present to both our optimistic and pessimistic members the information that will allow both to reach a mutually agreeable decision on the Medical School problem.

## TREATMENT OF RADIATION INJURIES

By E. P. Cronkite, Cdr., (MC) USNR

**R**ADIATION injury is a new addition to problems of military medicine in the future. Perhaps it would be best to review the nature of radiation injury and its diagnosis. This background would enable the physician to logically consider the care of radiation injury, which, in contrast to thermal burns, during its inception has one merit — it is generally painless. Radiation injuries may be divided into superficial injuries produced by less penetrating forms of radiation, i.e. beta, and the various syndromes of whole-body radiation injury that are produced by more penetrating forms of radiation, e.g. high energy gamma radiation and fast neutrons. To the large animal it makes little difference whether the syndromes of whole-body radiation are produced by gamma or fast neutrons. The results are approximately the same and the relative effectiveness of the neutron is not much greater than that of gamma radiation alone (1). The two appear to be additive. There are two sources of radiation. First, the short burst radiation that is produced at the time of detonation of the weapon and shortly afterwards consisting of gamma radiation and neutrons. Second, the field of residual radiation that is produced by neutron induced radioactivity in the soil and by the distribution of fission products on the ground. The latter is insignificant with conventional high air-burst weapons, but becomes of considerable importance with ground or close to ground, particularly high yield bursts as was accidentally demonstrated in the Pacific in March of 1954.

First, I will consider the syndromes of whole-body radiation injury. The syndrome varies with the dose of radiation. For practical purposes, the syndromes can be divided into three distinct types: first, the **NEUROLOGICAL TYPE** in which death is immediate or occurs within a few hours and is characterized by neuro-muscular symptoms; second the **GASTRO-INTESTINAL TYPE** with death occurring within three to six days and characterized by gastro-intestinal symptoms such as nausea, vomiting and the concomitant dehydration as a result of the loss of fluids and electrolytes; third, the

**HEMOPOIETIC TYPE** which may produce death within one to eight weeks. The latter is characterized by the sequelae of pancytopenia; namely, anemia, hemorrhage and infections in the presence of granulocytopenia. It is the latter syndrome with which one is concerned for practical purposes. The doses of radiation which produce the gastro-intestinal syndrome have been shown in animals to be almost uniformly fatal. The experiences of the Japanese at Hiroshima and Nagasaki tend to bear this out. The neurological type of syndrome was not observed by the Japanese, but in animal experimentation has been shown to be uniformly fatal. Amounts of radiation in excess of 2,000 r are required, quantities which, in the terms of our present knowledge, are absolutely fatal doses of radiation. Experimentally, it has been shown by Conrad et al. (2) that the gastro-intestinal syndrome is in itself not necessarily fatal and that in dogs the large-scale replacement of fluids and electrolytes may prolong life with histologic recovery of the gastro-intestinal mucosa. However, the animals die at a later time from the sequelae of pancytopenia with an aplastic bone marrow. From a practical standpoint one is therefore confronted with the therapy of the hemopoietic syndrome. Since the syndrome of radiation injury, due to whole-body penetrating radiation, varies with the dose, the symptomatology in a sense, is a dosimeter. However, estimations of the severity of exposure to gamma radiation in the lower dose ranges becomes of considerable practical importance since survival in the lethal range is dose dependent. The problems involved with estimation of dose received by the individual are really difficult. It is possible that dose estimates may be available from dosimetry devices, or from dose contour lines and the position of the individual during exposure. Some of the difficulties of relying heavily on dose estimates are obvious. The exact position of the individual and the degree of shielding will not be known. The dosimetry device records the dose the instrument receives which may not reflect accurately because of shielding, energy dependence of the device, etc., the dose received by the individual. More important, because of individual differences in sensitivity, individuals exposed to the same measured dose may differ widely in their responses. Thus, no estimate of dose derived from dosimeters or

from the position of the individual during exposure can be taken as an accurate index of the probable fate of an individual, or as the final index to therapy, triage or prognosis.

The best approach for estimating the seriousness of exposure of the individual may be termed, the symptomatic approach. As with any disease, an accurate appraisal of the patient's condition results only from a thorough evaluation of the history, physical and laboratory examination. If heavy exposure has occurred, nausea and vomiting will follow in most individuals within a few hours. This does not necessarily indicate a poor prognosis. Heavily exposed individuals may be divided into three groups in which survival is respectively, IMPROBABLE, POSSIBLE and PROBABLE. It will be apparent that there is no sharp line of demarcation between the groups.

#### Group 1 - SURVIVAL IMPROBABLE:

If vomiting occurs promptly or within a few hours and continues and is followed in rapid succession by prostration, diarrhea, anorexia, fever, the prognosis is grave; death will almost definitely occur in 100% of the individuals within the first week. There is no known therapy for these people, accordingly in a catastrophe attention will be devoted to others for whom there is some hope.

#### Group 2 - SURVIVAL POSSIBLE:

Vomiting may occur early but will be of relatively short duration, followed by a period of well-being. In this period of well-being, marked changes are taking place in the hemopoietic tissues. Lymphocytes are profoundly depressed within hours and remain so for months. The neutrophile count is depressed to low levels, the degree and time of maximum depression depending upon the dose. Signs of infection may be seen when the total neutrophile count has reached virtually zero (7-9 days). The platelet count may reach very low levels after two weeks. External evidence of bleeding may occur within two to four weeks. This group represents the lethal dose range in the classical pharmacologic sense. In the higher exposure groups of this category the latent period lasts from one to three weeks with little clinical evidence of injuries other than slight fatigue. At the termination of the latent period, the patient may develop purpura, epilation, oral and cutane-

ous lesions, infections of wounds or burns, diarrhea, and melena. The mortality will be significant. With therapy the survival time can be expected to be prolonged and if sufficient time is provided for bone marrow regeneration the survival rate will be increased.

#### Group 3 - SURVIVAL PROBABLE:

This group consists of individuals who may or may not have had fleeting nausea and vomiting on the day of exposure. In this group there is no further evidence of effects of the exposure except the hematologic changes that can be detected by serial studies of the blood with particular reference to lymphocytes and platelets. The lymphocytes reach low levels early, within 48 hours, and may show little evidence of recovery for many months after exposure. The granulocytes may show some depression during the second and third week. However considerable variation is encountered. A late fall in the granulocytes during the sixth or seventh week may occur and should be watched for. Platelet counts reach the lowest on approximately the 30th day at the time when maximum bleeding was observed in the Japanese who were exposed at Hiroshima and Nagasaki. This time trend in the platelet count and the development of hemorrhage is in marked contrast to that seen in laboratory animals when platelets reach their lowest level around the 10th to 15th days and hemorrhage occurs shortly thereafter.

The syndromes described above may occur not only as a result of exposure to the initial radiation from the atomic bomb but may also be produced by exposure to radiation from fall out. In the case of the former, radiation is received over a period of only a few seconds and in the latter the dose rate varies with the time after detonation. The dose rate from the field of fission products varies roughly with the minus 1.2 law. For example, the dose rate one hour after the blast will fall 44% of this value within the next hour or two hours after the explosion. However, at ten hours after the blast, the given dose rate will fall by only 11% of its value during the next hour; for example, the dose rate at 11 hours will be 89% of what it was at ten hours. In other words, if the maximum fall out and thus the maximum exposure rate to fall out has not occurred for several hours after the explosion,



the rate of fall off in the area obviously will not be as rapid as it would be from earlier fall out material. In the case of very early fall out shelter is essential until evacuation because of the high dose rates. In the case of fall out occurring at a later interval when the dose rate is relatively constant and much lower, evacuation and/or shelter will significantly reduce the total exposure. The initial radiation and fall out radiation also vary in respect to the effective energy. As shown by Cronkite et al. (3) the spectrum of the atomic bomb gamma radiation at distances in which survival is possible behaves biologically like the radiation from a 250 KVP X-ray machine. This results because the primary beam has attained equilibrium in air from successive Compton scattering. The spectrum from the field of fall out radiation has a very wide spectrum of inherent energy that is degraded by Compton scattering so that there are peaks at 100 KEV, 600 to 800 KEV, and 1,600 KEV. In respect to effectiveness of shelters in the fall out area, the following estimates have been released (4). A frame house would reduce the total dose received by one-half; a brick or concrete structure would be more effective obviously. The basement would reduce the total exposure to about one-tenth of the air value. In a shelter of thickness equivalent to 3 ft. of earth, the dose would be reduced 1/5,000 of its value, affording complete protection in the most heavily contaminated area.

The relative radii of effectiveness of ionizing radiation, blast, and thermal effects vary with weapon size. With small weapons the radiation is relatively more effective. However, with the larger weapons the initial radiation does not extend beyond the reach of total destruction by blast and thermal effects. Accordingly, in the latter situation radiation injury from the prompt radiation is relatively unimportant because those who would be in the region where recovery is possible from radiation alone would have a very little chance of surviving from the other effects of the device. However, it is feasible to get good protection from the blast and thermal effects of small weapons by appropriate use of cover and shelter. In this tactical situation radiation injury uncomplicated by trauma may be seen. With super weapons fall out is probable and has been shown capable of producing radiation injuries (5). As a result

of this accident in 1954 a considerable amount of information was obtained on the nature of both skin and wholebody radiation injury of human beings produced by exposure to fall out radiation. The radiation injury of the skin produced by fall out can best be described illustratively with the actual injuries that took place in the Marshall Islands. Following the visible snow-like fall out, there was burning and itching of the skin on the day of exposure, lacrimation and burning of the eyes. These symptoms subsided promptly. At the time of appearance of the lesions, there was considerable burning and pain connected with movement. Treatment of these lesions was entirely symptomatic except for those which became infected. In these instances parenteral penicillin and aureomycin ointment was used.

Considerable amount was also learned about whole-body radiation of the human being in the sublethal range. Following 175 r whole-body radiation, the following sequence of events was observed in the peripheral blood. It is apparent that leukopenia and thrombopenia were present in all of the exposed individuals. Granulocyte counts as low as 500 and platelet counts as low as 35,000 were observed. However, only for a short period of time. Had the dose of radiation been larger the depression would have been more pronounced and of longer duration. For our purposes here, there is no need to go into a detailed study of the dose response of the granulocytes and the platelets nor of the fact that the duration of depression increases as the dose increases. In a general sense there is a period of time during which life is compatible with very low granulocyte and platelet counts. However, if marrow recovery does not occur within a matter of a week or so the probability of overwhelming infections and massive hemorrhage becomes increasingly greater. Anemia will become prominent as blood is lost by hemorrhage and the marrow fails to produce new cells. The therapeutic problem is obviously the treatment of the sequelae of pancytopenia, namely, infections, hemorrhage, and anemia. Since little can be done for the anemia and hemorrhage except replacement of blood as needed to sustain life the therapy is mainly aimed at control of infection. In most species infection is a predominant cause of death in the lethal range, however obliteration of infection by the germ



free state in rats does not eliminate death due to other causes (6). In these animals death occurs from hemorrhage and a profound anemia.

The increased susceptibility to infection results from multiple causes and has been recently reviewed (1) and may be summarized as follows:

- a. Granulocytes are decreased in number.
- b. Granulocytic functions are impaired.
- c. The reticuloendothelial system phagocytizes bacteria but does not kill the ingested bacteria as readily.
- d. Acquired antibody production is diminished.
- e. Natural antibody (properdin) titres decrease.
- f. The connective tissue of the skin is altered.

There is little wonder that infection occurs with almost all defenses impaired. In fact, infections are generally produced by commensal organisms in addition to pathogens if present in endemic or epidemic states. Experimental work in animals has clearly demonstrated that immunization to specific bacteria increases the survival rate when the animals are later challenged by the same bacteria (7, 8). In addition, antibiotics have been shown to be of definite value when the offending organism is susceptible to the antibiotic and when the dose of radiation is in the mid-lethal range. Accordingly, certain general principles can be stated about therapy:

1. Active immunization in those instances when feasible will increase the chances of survival against specific infections. This is automatically accomplished in the military establishment and should be urged for the population at large.

2. Diverse antibiotics with a wide antibacterial spectrum are needed in the stockpile.

3. Group 3 type casualties will need little or no active therapy per se — observation and orthodox treatment of complicating wounds or burns should suffice. It was learned that the group 3 category of radiation casualties could tolerate an epidemic of upper respiratory infections, presumably of viral origin, with no untoward effects. Of considerable importance logistically this category can be ambulatory, physically fairly active and should be useful citizens or soldiers while under observation. For more definitive management of radiation injury

it appears desirable to divide the problem into the ideal situation, where there are only one or a few casualties and the problem of mass management in the case of nuclear warfare. In the former case the situation should be handled as a research problem and in the latter case compromises must be made in order to distribute medical care where it will be most effective in aiding national survival. First the ideal situation will be considered for each of the categories described earlier:

#### Group - - SURVIVAL IMPROBABLE:

1. Bed rest will be mandatory since these individuals will be sick from the time of exposure.

2. Nutrition will be parenteral. Water and electrolyte balance will have to be maintained by large volumes of intravenous saline — glucose, plasma, and balanced electrolytes as necessary. For a matter of many days the bowel will not tolerate anything other than small quantities of fluids.

3. Nursing care must be of the highest order. Particular attention should be paid to the hygiene of the mouth, teeth, skin and the perineal area since these are the locations aside from wounds where infection frequently develops and progresses to an overwhelming sepsis. Asepsis is paramount.

4. From the fifth day after exposure one can anticipate the development of spontaneous infection at most any time. Antibiotics should be commenced about the fifth day and one should be prepared to use them in combination with maximum doses as necessary to control infection.

5. From the 7th day on, an anemia, due to hemorrhage and cessation of blood cell production, will develop unless dehydration produces a hemoconcentration. A reasonable plasma volume must be maintained. As anemia develops fresh whole blood collected in plastic bags with di-sodium salt of ethylenediamine tetra-acetate (EDTA) as the anticoagulant should be administered as necessary. If hemorrhage is prominent in presence of a marked thrombopenia, platelet transfusions should be given daily.

6. One should seriously consider the use of homologous intravenous or intramedullary bone marrow, even though permanent restoration of

hemopoiesis has only resulted with genetically specific bone marrow (1).

7. Complete electrolyte and blood chemistry studies should be performed and all excreta saved and properly measured for studies of amino acid and steroid excretion in addition to other substances that may become of importance in the future.

8. Since knowledge of severe radiation injury in human beings is scanty extensive studies on the metabolic cycle of labelled compounds should be pursued at every opportunity. In parallel all efforts should be made to prolong life as long as possible in order to learn more about the spontaneous course of human radiation injury.

#### Therapy of Group 2 - SURVIVAL POSSIBLE:

1. The general management of this category is identical to group 1 but will not demand so much attention during the first few days since vomiting and diarrhea will subside within a day or so.

2. Infection is the major hazard as in group 1. Meticulous daily physical examinations looking for evidence of beginning infection are the key to therapy and commencement of antibiotics, oral and parenteral. Premature administration is contraindicated because of the hazards of sensitization of the patient and development of bacterial resistance to the antibiotics.

3. Transfusions of whole blood or separated platelets and leukocytes will be indicated by the need. Transfusions should be resorted to only when actually needed since there is no evidence to date that maintenance of red cell and platelet levels will increase the survival rate per se. One can qualify need as distressing anemia for whole blood, spontaneous bleeding for platelets and infection uncontrolled by antibiotics for leukocytes.

#### Therapy of Group 3 -

None needed. Observations are identical.

All radiation injury complicated by wounds and burns, will be more serious. The development of bacterial epidemics will probably lessen the probability of survival from radiation injury. A potential complication in combined radiation and traumatic injury is the unfavorable effect of dextran in producing bleeding in the presence

of a lowered platelet count.

In conclusion, radiation injury per se from fall out should not be a major problem if troops and civilian populations are properly educated and prepared. It can be largely avoided or minimized by shelter or evacuation. Radiation injury from the initial radiation except in special tactical situations will be relatively unimportant. Trauma and thermal burns will dwarf radiation injury as a practical problem. Under catastrophe conditions one must compromise drastically with the ideal situation; reserve stores of blood and plasma for the traumatic casualties when it is of known value; and endeavor to control infection by oral wide spectrum antibiotics. I should like to close in stating that progress is obviously being made in considering mass care of casualties. Compromises in therapy towards expediency have been made. The psychologic adjustments are painful but the compromises enable one to do the most good for the maximum number in view of what is known and available today. It would be unfair to state that there is any early probability of developing an antidote for radiation injury. Much has been learned about the spontaneous course and the acceleration of restoration from radiation injury at an experimental level but there is nothing that is clinically practical for use on human beings on any scale at the present time.

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#### EDITOR'S NOTE

The above article is reproduced by permission from the Journal *MILITARY MEDICINE*. The April issue of this publication was an excellent review of the Management of MASS CASUALTIES and the Treatment of Injuries in Association with Atomic Warfare. A 188 page reprint of all the articles is available at \$1.50 for the paperback cover or \$3.00 for the buckram binding. Address requests to Colonel Robert E. Bitner, Secretary-Editor, Suite 718, New Medical Building, 7126 Eye Street, N. W., Washington 6, D. C.



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## CIVIL DEFENSE EMERGENCY HOSPITAL

**T**HE FEDERAL Defense Administration has made available to the State Civil Defense Agency a two-hundred bed emergency hospital. This hospital was shown at the annual meeting of the Arizona Medical Association at the San Marcus Hotel last spring. Later the Phoenix hospital group with the cooperation of many people set the hospital up again and exhibited it in the Harber Building on North Central, this space being made available through the courtesy of Dr. J. N. Harber. Interest in both showings was not as great as anticipated, but many people had first-hand knowledge from this of the availability of this hospital equipment.

The use of the word "bed" in describing the hospital partakes a little of a "Madison Avenue" adjective as the beds are really army cots, and the equipment of the hospital is of the field type as used by the Armed Services. Many of our physicians and surgeons in the state are quite familiar with this equipment through their experiences in the Armed Services. However, the hospital is well equipped for emergency or disaster needs and is available on call from the State Civil Defense Agency.

At the present time the hospital is stored in a National Guard Building at 52nd Street and McDowell Road, Phoenix. Civil Defense Agency has requisitioned under the Surplus Property Act a trailer van in which it is planned to store the hospital so that when needed, all that will be necessary will be to back up a truck tractor to the van and send the hospital on its way to the disaster or emergency area. The unit is on call from any city or county in the state or hospitals in the various cities.

At the present time we are endeavoring to obtain from Federal Civil Defense Administration a second unit to be based at or near Tucson and hope that it also may be stored in a van similar to the arrangement being made at Phoenix. If we are successful in obtaining this unit, it will be held there under the auspices of the Pima County-City of Tucson Joint Civil Defense Council. Our office is indebted to the Arizona Medical Association for the opportunity to display the hospital at the Chandler meeting and to the Arizona Hospital Association for the display in the City of Phoenix.

Neither display could have been possible

without the cooperation and assistance of the Arizona National Guard in transporting the equipment from its base to the exhibit site.

A partial list of the equipment of the hospital is as follows: two hundred cots, gas generator for X-ray, sterilizers, anesthesia apparatus, litters, Coleman lanterns, cylinders of nitrous oxide and oxygen, ether, alcohol, all types of bandages, blankets, towels, sheeting, etc.

## THE ARIZONA MEDICAL ASSOCIATION, INC.

826 Security Building  
Phoenix, Arizona

### LOCATION OPPORTUNITIES

**ASHFORK** — Pop. 700 — North centrally located — Railroad center — Contact Mr. J. J. Slamon, Justice of Peace, Ashfork, Arizona.

**DAVIS-MONTHAN AIR FORCE BASE** — Located on outskirts of Tucson — In need of a General Medical and Surgical officer part time, \$7,465.00 per year. Application should be made to the Civilian Personnel Office at Davis-Monthan.

**DOUGLAS** — Pop. 10,000 — On the Mexican border in the southeast section of Arizona — Opportunity for associate practice in OALR. Contact James S. Walsh, M.D., 631 9th Street, Douglas, Arizona.

**FLAGSTAFF** — Pop. 7,500 — Largest city in the north central Arizona trading area — Navajo Ordnance Depot is in the process of recruiting for a medical officer. Navajo Ordnance Depot, Flagstaff, Arizona.

**FLAGSTAFF** — Excellent opportunity for a pediatrician and for a radiologist. Please contact Morris M. Zack, M.D., 411 Birch Street, Flagstaff, for further information.

**GILA BEND** — Pop. 2,500 — 80 miles west of Phoenix — Good opportunity for general practitioner. Cattle, cotton and general farming. Office and equipment available. \$150 monthly income from Board of Supervisors. Contact Mrs. J. F. Allison, Box 126, Gila Bend, Arizona.

**LAS CRUCES, NEW MEXICO** — In South Central part of State and not too distant from El Paso, Texas. Population is approximately 22,000, boasts State College and White Sands proving grounds. General Hospital, 85 beds, fully accredited and staffed by fourteen (14)



doctors. Need Urologist and/or Obstetrician-Gynecologist. For full details write: A. M. Babey, M.D., President of the Staff, 250 West Court Street, Las Cruces, New Mexico.

**PAYSON** — Pop. 1,800 — Have completed and equipped a new clinic. Are badly in need of a medical doctor and the closest medical facilities are 80 miles away. For further information contact Mrs. Edward W. Laylor, Secretary, Payson Clinic, Inc., Payson, Arizona.

**TUCSON** — An opening in the Outpatient Department of the Veterans Administration Hospital for a generalist or internist occurred early in September. State license is necessary, but not necessarily an Arizona license. If interested, contact S. Netzer, M.D., Director, Professional Service, V. A. Hospital, Tucson, Arizona.

**TUCSON** — Opening for a board certified or board eligible Orthopedist to form and head an Orthopedic Department in the Tucson Clinic. Must have had good training in pediatric orthopedics as well as acute trauma and reconstructive work. Are looking for a younger man; however, are willing to consider any well trained physician regardless of age. If interested, contact D. J. Heim, M.D., The Tucson Clinic, 116 North Tucson Boulevard, Tucson, Arizona.

**TUCSON** — Looking for a General Practitioner for plant services — \$750.00 monthly, 5 days a week. Contact Doctor Meade Clyne, 116 North Tucson Boulevard, Tucson, Arizona.

**YOUNGTOWN** — Pop. 130 — Located 16 miles from Phoenix, 4 miles from Peoria, 1½ miles from El Mirage, 1 mile from Surprise, each a potential field of practice. Most residents are 60 years of age or older and are in need of medical care. Currently provided at no rental, is office space. A medical center is being planned. Interested doctors may contact Mr. Sid Lambert, Box 61, Marionette, Arizona.

**YUMA** — Pop. 15,000 — Situated in the Southwest corner of the State on the Colorado River — In need of a county physician. This is an ideal setup for a retired or semi-retired doctor. The doctor should devote all of his time to the job or have a private practice in addition. If interested, call Mr. Robert Odom, collect, at SUNset 3-7843 as soon as possible.

**FOR INFORMATION ON OPPORTUNITIES IN THE FIELD OF INDUSTRIAL MEDICINE, CONTACT:**

Harold J. Mills, M.D., Phelps Dodge Hospital,

Ajo, Arizona.

Carl H. Gans, M.D., Phelps Dodge Hospital, Morenci, Arizona.

Ira E. Harris, M.D., Miami Inspiration Hospital, Miami, Arizona.

Charles B. Huestis, M.D., Box 928, Hayden, Arizona.

Elvie B. Jolley, M.D., Copper Queen Hospital, Bisbee, Arizona.

H. W. Finke, M.D., Magma Copper Company Hospital, Superior, Arizona.

John Edmonds, M.D., Kennicott Copper Corporation Hospital, Ray, Arizona.

## BLUE SHIELD

**T**HE COMMEMORATION of the ninth anniversary of Arizona Blue Shield was a noteworthy one. An honor of unusual magnitude was accorded our state plan with the presence of Dr. Louis H. Bauer as the distinguished speaker of the evening December 1st at Camelback Inn, Phoenix.

As past president of the American Medical Association, and presently chairman of the board of New York's Blue Shield Plan, Dr.



This is Dr. Louis H. Bauer, past president of the American Medical Association, who was the featured and interesting speaker at the ninth anniversary dinner meeting of Arizona Blue Shield December 1.

Bauer was able to bring meaning and scope to his words. He discussed the future of Blue Shield in the medical-surgical prepayment field.

70 people attended the banquet meeting presided over by Dr. G. Robert Barfoot, president of Arizona Blue Shield. Others on the evening's agenda included Ned F. Parish, assistant director of the Blue Shield Commission, Chicago, and formerly with this plan, and L. Donald Lau, executive director for Blue Cross-Blue Shield in Arizona.

Recognition was bestowed on past board and professional committee members. Dr. Barfoot presented certificates of service to the following board members: Dr. E. A. Born, Prescott; Dr. Walter Brazie, Kingman; Dr. Meade Clyne, Tucson; Dr. Paul Holbrook, Tucson; Dr. E. C. Houle, Nogales; Dr. A. I. Podolsky, Yuma; Dr. Hal W. Rice, Tucson; Mr. Steve Spear, Phoenix; Dr. O. E. Utzinger, Scottsdale; Earle Barrows, Phoenix; Dr. J. Lytton-Smith, Phoenix; Dr. Royal Rudolph, Tucson; John Babbitt, Flagstaff, Dr. Robert Cummings, Phoenix; Dr. Zeph Campbell, Phoenix; Dr. Sebastain Caniglia, Phoenix; Dr. Frederick W. Knight, Safford; Rev. George Ferguson, Phoenix, and John Dirkin, Tucson.

Lau presented similar certificates to past members of the professional committee in the absence of Dr. Clarence Warrenburg. The following received recognition for their services: Dr. E. M. Hayden, Tucson; Dr. Harry Southworth, Prescott; Dr. Kenneth Brilhart, Cottonwood; Dr. Wallace Reed, Phoenix; Dr. Karl Harris, Phoenix and Dr. James Moore, Phoenix, medical director of the plan, who sits in on all professional committee meetings.

Dr. Carlos C. Craig, Phoenix, second president of the plan, presented plaques to Dr. H. D. Ketcherside and Dr. Joseph Greer who served as past chairmen of the professional committee. Both are from Phoenix.

Dr. David C. James, Phoenix, presented a gavel and sounding board duly inscribed to the immediate past president of Blue Shield, Dr. Donald Polson, Phoenix.

In the nine years of the plan, growth and expansion of services and membership have been outstanding. Arizona Blue Shield now has over 900 Participating Physicians and nearly 140,000 members. In 1955 over \$900,000 was paid to doctors of medicine for services rendered Blue Shield members.

## BOARD OF MEDICAL EXAMINERS— STATE OF ARIZONA

826 Security Building  
Phoenix, Arizona

The Board of Medical Examiners of the State of Arizona at a regular meeting held October 20, 1956, issued certificates to practice medicine and surgery in this State to the following doctors of medicine:

Anderson, James William  
739 Montana Avenue, Lovell, Wyoming

Baker, Earl John  
550 West Thomas Road, Phoenix, Arizona

D'Amico, Thomas Vincent  
368 Ridgewood Avenue, Glen Ridge, N. J.

Davies, William Dean  
Sage Memorial Hospital, Ganado, Ariz.

Frazin, Bernard  
V. A. Hospital, Phoenix, Arizona

Gagnon, Bernard H.  
V. A. Hospital, Whipple, Arizona

Grant, Austin R.  
15 East Monroe, Phoenix, Arizona

Gruys, Robert Irving  
Wells, Minnesota

Hedegaard, Arne R.  
3437 Jackson Street, Denver, Colorado

Hufton, Wilfrid L.  
Tempe, Arizona

Lawrence, William Doran  
420 Star, Hereford, Texas

Liddicoat, Arthur Gordon  
20125 Fenkel Avenue, Detroit 23, Mich.

List, Martin Lorenz  
1313 No. 2nd Street, Phoenix, Arizona

MacMillan, Richard Karl  
Temple U. Med. Center, Philadelphia, Pa.

Pachtman, Harold  
2314 No. 32nd Street, Phoenix, Arizona

Rhoades, Albert Leonard  
15 East Monroe, Phoenix, Arizona

Sells, Robert Allan  
669 So. Union, Los Angeles, California

Sergeant, Warren Felix  
Tucson Medical Center, Tucson, Arizona

Vogt, Anne M. Stupnicki  
Arizona State Hospital, Phoenix, Arizona

## P-G COURSE DISEASES OF THE CHEST

**T**HE 6TH Biennial Post-Graduate Course on Diseases of the Chest, co-sponsored by the Los Angeles County Tuberculosis and Health Association and the Los Angeles County Medical Association's Section on Diseases of the Chest, will be given on January 31, February 1, and 2 in Los Angeles. The course will be a practical presentation of the current status of chest diseases with special emphasis on diagnosis and treatment. Topics will include diagnostic procedures, emphysema, pneumonia, pleural diseases, pulmonary tuberculosis, carcinoma of the lung, pulmonary function tests, fungus diseases, cor pulmonale, surgery of the heart, and surgery of the esophagus. Its practical nature should be of special importance to the internist and the family physician. Included in the program will be a Cancer Workshop, with division of the class into small discussion groups involving a panel composed of a surgeon, an internist, and a pathologist.

An optional feature on Wednesday, January 30, will be specially arranged observations of local hospital clinics, activities, and conferences.

The faculty will include David T. Carr, M.D., Mayo Clinic, Rochester, Minnesota; Maurice S. Segal, M.D., Boston; Edgar W. Davis, M.D., Washington, D.C.; H. Corwin Hinshaw, M.D., San Francisco; and local chest specialists.

The registration fee of \$35.00 will include a banquet on Thursday evening. Further information and advance registration may be obtained by writing to: David Salkin, M.D., 1670 Beverly Boulevard, Los Angeles 26, California.

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## Report Of The Delegate Actions Of The House Of Delegates American Medical Association Tenth Clinical Session Nov. 27-30, 1956 Seattle, Washington

**Y**OUR delegate and our Executive Secretary, Mr. Robert Carpenter attended all sessions of the House of Delegates of the A.M.A. held recently in Seattle, Wash.

This report will not attempt to relate in too much detail all actions taken by the House of Delegates because of the space allotment in the State Medical Journal, but will cover a few of the many important subjects dealt with during this session.

Dr. Edward M. Gans of Harlowton, Montana, was announced at the opening session Tuesday as the 1956 General Practitioner of the Year. This annual award, carrying with it a gold medal and a citation, is presented to a family doctor selected by a special committee of the Board of Trustees for outstanding community service. Dr. Gans, who is 80 years old, has practiced medicine for 51 years and has been in the Harlowton area for the past 44 years.

Strongly condemning government intervention in medicine, Dr. Dwight H. Murray of Napa, Calif., A.M.A. President, told the opening session that "the medical profession, along with business and industry, is caught between those who desire to promote sound government programs and those who desire even more intensely to perpetuate party politics. Unfortunately, in recent years a benevolent federal government appears more attractive to the voting public than the preservation of individual freedoms. Medicine must do its utmost to reverse this trend." A copy of the complete address of our A.M.A. President is submitted to the Editor with this report with the hope that it can be published in full in some near future issue of our Journal. It was received with enthusiastic approval by every member of the House of Delegates, and should be read by every member of our State Association.

### MEDICAL ETHICS

Subject of greatest interest at Seattle was the proposed, ten-section revision of the Principles of Medical Ethics originally submitted at the June, 1956, Annual Meeting in Chicago, where

final action was deferred until the Seattle session. The proposed short version of the Principles was resubmitted this week, with some changes based on suggestions received since last June by the Council on Constitution and By-Laws. The House of Delegates, however, decided to refer the matter back to the Council on Constitution and By-Laws for further study and consideration. The reference committee report adopted by the House included the following statements:

"Careful consideration was given to the Preamble and the ten sections of the proposed Principles. The Preamble and seven of the ten sections appear to be acceptable in their present form.

"Sections 6 and 7 were not acceptable as presented either to the group which appeared at the hearing or to your reference committee.

"Out of the general discussion the reference committee received the crystallized opinion that at least four areas needed more specific attention in Sections 6 and 7. These are:

"(1) Division of fees;

"(2) The dispensing of drugs and appliances;

"(3) The corporate practice of medicine;

"(4) Greater emphasis concerning the relationship between physicians and patients.

"In addition, the reference committee felt that the wording in Section 10 could be improved if amended to read as follows:

"The responsibilities of the physician extend not only to the individual but also to society and deserve his interest and participation in activities which have as their objective the improvement of the health and welfare of the individual and the community."

"In view of the above your reference committee believes that the proposed Principles of Medical Ethics should be referred back to the Council on Constitution and By-Laws for further study and consideration of the above stated principles.

"In the short space of time at our disposal and in view of the importance of the subject, your reference committee did not deem it wise to attempt to properly phrase these concepts.

"We would also recommend that if possible this study be completed at least six weeks prior to the June session and that the new version be published in THE JOURNAL in order that all interested physicians might have an opportunity to comment thereon. The ten-section re-

vision of the Principles of Medical Ethics was printed in the November issue of Arizona Medicine as well as the Delegates' Report in the July, 1956 of our Journal.

#### VETERANS' MEDICAL CARE

The House revised A.M.A. policy on veterans' medical care by endorsing in principle the following paragraph suggested by the Council on Medical Service:

"With respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated."

This action eliminates the temporary exceptions which were made in the June, 1953, policy regarding wartime veterans who are unable to defray the expenses of necessary hospitalization for non-service-connected cases of tuberculosis or psychiatric or neurological disorders. In making the policy change, the House approved this supplementary statement:

"We recognize the laws and administrative extensions of the law that are now in operation. We feel that under the circumstances it will be to the best interests of the public in general, and veterans in particular, if medical societies, county and state as well as national, develop committees to assist in guaranteeing VA hospital admission to service-connected cases. While the present law exists, we shall help assure that veterans whose illness constitutes economic disaster will not be displaced by those suffering short-term remediable ills which, at the worst, constitute financial inconvenience."

In another action concerning veterans, the House passed two resolutions condemning as unlawful the practice of Veterans Administration hospitals which admit patients who are covered by workman's compensation insurance or by private health insurance and which render bills for the cost of their care. Both resolutions requested the A.M.A. to take action to bring about a discontinuance of such practices by VA hospitals, and one of them instructed the Association Secretary to obtain from each state testimony or records of each known case that violates VA Reg. 6047-D1.

#### RADIOACTIVE ISOTOPES

The House rescinded the June, 1951, action,



which limited the hospital use of radium and radioactive isotopes to board-certified radiologists, by approving a new policy statement which says:

"(1) In any hospital in which a patient is to receive radium or the products of radium or artificially produced isotopes, there should be a duly appointed Committee on Radium and Artificially Produced Radioisotopes of the hospital professional staff. This committee should include, but not necessarily be limited to, the following qualified physicians: a radiologist, a surgeon, an internist, a gynecologist, a urologist and a pathologist. This committee should have available such competent consultation of other physicians and scientific personnel as may be required by it. Where this is not practicable, the hospital staff should consult the nearest Committee on Radium and Artificially Produced Radioisotopes.

"(2) In any hospital, the use of radium or its products and artificially produced radioactive isotopes for diagnostic or therapeutic purposes shall be restricted to qualified physicians so judged by the Committee on Radium and Artificially Produced Radioisotopes of the professional staff to be adequately trained and competent in their particular use.

"(3) It is recommended that procurement, storage, dosimetry control and inventory of all radioactive isotopes for the use of the hospital staff and radiological safety control be centralized, and, where administratively possible, centralization be located in the Department of Radiology.

"(4) It is recommended that the Board of Trustees assign to the appropriate council or committee the continuous study of the problems of radiological safety control in the use of radium and its products and artificially produced radioactive isotopes for diagnostic or therapeutic purposes."

#### CLINICAL MEETINGS

Rejecting a resolution which recommended discontinuance of the interim sessions, or clinical meetings, the House adopted a reference committee report which said:

"We believe that the interim sessions should be continued because of the public relations value of these meetings to the Association and the educational value to physicians and the general public in the various geographical areas involved.

"It is the suggestion of the reference committee that maximum attention be given to these potential benefits in selecting a city for the interim meeting.

"It is our further recommendation that the Board of Trustees consider the advisability of holding an Interim Meeting of the House of Delegates in Chicago each November or December and an Interim Scientific Session in November or December of each year in different parts of the United States. The reference committee suggests that the views of the Board of Trustees in this regard be reported to the House of Delegates next June."

#### HOSPITALIZATION FOR ALCOHOLICS

To implement educational approaches to the problem of alcoholism, the House approved a statement submitted through the Board of Trustees by the Council on Mental Health and its Committee on Alcoholism. The House also recommended that the statement be brought to the attention of the Council on Medical Education and Hospitals, the Joint Commission on Accreditation of Hospitals and the American Hospital Association. It includes the following:

"The Council on Mental Health urges hospital administrators and the staffs of hospitals to look upon alcoholism as a medical problem and to admit patients who are alcoholics to their hospitals for treatment, such admission to be made after due examination, investigation and consideration of the individual patient. Chronic alcoholism should not be considered as an illness which bars admission to a hospital, but rather a qualification for admission when the patient requests such admission and is cooperative, and the attending physician's opinion and that of hospital personnel should be considered. The chronic alcoholic in an acute phase can be, and often is, a medical emergency."

#### COMMITTEE ON MEDICAL PRACTICES

In approving a progress report of the Committee on Medical Practices, the House amended one of its directives to read as follows in order to remove any legal objections:

"The A.M.A. representatives on the Joint Commission on Accreditation of Hospitals be instructed to stimulate action by that body leading to the warning, provisional accreditation, or removal of accreditation of community or general hospitals which exclude or arbitrarily restrict hospital privileges for generalists as a class regardless of their individual professional

competence where such policies adversely affect the quality of patient care rendered. Any action taken should be only after appeal to the Commission by the county medical society concerned."

The House also approved a recommendation by the Committee on Medical Practices that a study group be formed to consider the best background preparations for general practice, and it urged that such action be implemented as soon as practicable.

#### MISCELLANEOUS ACTIONS

Among many other actions on a wide variety of subjects, the House of Delegates also:

Urged the widest possible publication and distribution of Dr. Murray's PRESIDENTIAL ADDRESS at the opening session;

Pledged the full support of the Association's initiative and energy to President Eisenhower's PEOPLE-TO-PEOPLE PROGRAM as a means of promoting understanding, peace and progress;

Directed the Board of Trustees to continue its investigation of the practicability of developing a STATEMENT OF A.M.A. POLICIES and to arrange for the periodic publication of revised versions of such a policy statement;

Commended the objectives of the American Association of MEDICAL ASSISTANTS and its sincere desire to work closely with the medical profession in improving medical service and medical public relations;

Noted with pride the good work being done by the 74,348 members of the WOMAN'S AUXILIARY, as reported to the House by Mrs. Robert Flanders, President;

Directed the Councils on Pharmacy and Chemistry and on Foods and Nutrition to conduct a joint study of all presently available information concerning the FLUORIDATION OF PUBLIC WATER SUPPLIES and to present a documented report of findings and recommendations at the December, 1957, meeting;

Urged all physicians to participate actively in the formulation of medical policy for PREPAID MEDICAL CARE PLANS which are under physician direction or sponsorship;

Changed the By-laws to extend SERVICE MEMBERSHIP to reserve officers on extended active duty with the defense forces and the U. S. Public Health Service;

Changed the By-laws relating to TRANSFER OF MEMBERSHIP so that an active or as-

sociate member of the Association who moves his practice to another jurisdiction may continue his A.M.A. membership by applying for membership in the constituent association in his new jurisdiction, subject to a two-year limit on approval of his application;

Changed the By-laws so that the ELECTION OF OFFICERS may take place at any time on the fourth day of the annual session, instead of being restricted to the afternoon of that day;

Passed a resolution calling for the American Medical Association to join with the American Hospital Association and the American Institute of Architects in their proposed STUDY OF HOSPITAL DESIGN AND CONSTRUCTION;

Approved the principle of a voluntary reduction in the self-assigned QUOTA OF INTERNS as printed in the 1956 handbook of the National Intern Matching Program, and

Instructed the Board of Trustees to accentuate cooperation between the American Medical Association and the American Bar Association to the end that a bill of the JENKINS-KEOGH type be enacted at the next session of Congress.

#### OPENING SESSION

At the Tuesday opening session, Dr. Murray, on behalf of the American Medical Association, presented a special citation to Ciba Pharmaceutical Products, Inc., for "the service it has performed to the medical profession and to the nation thru its weekly television series, 'Medical Horizons'." At the same session, the American Medical Association, and four of its constituent societies — California, Arizona, Utah and New Jersey — contributed nearly \$300,000 to the American Medical Education Foundation for aid to the nation's medical schools. The A.M.A. announced another gift of \$125,000, bringing this year's total contribution to \$343,000. The amounts presented from the rostrum of the speaker's stand by representatives of these four states, including your delegate, was California, \$132,981; New Jersey, \$25,000; Utah, \$11,870, and Arizona, \$3,695. The contribution from Arizona next year should approximate \$8,000 or more when membership dues are collected in 1957.

It was a pleasure to represent Arizona again in the A.M.A. House of Delegates at this session.

Respectfully submitted  
J. D. Hamer, M.D.  
Phoenix, Ariz.

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# Organization PAGE

## CIVICS

By Norman A. Ross, M.D.

**T**HE TRUE clinician diagnoses accurately and sees at once the patient's disease from now to autopsy.

"As your preceptor I consider my responsibility now to teach you the art of healing. Many graduates have found that it takes them ten years to see patients as other than specimens once they have convinced themselves of THEIR diagnosis. Your professors have warned you of this, probably only presenting the one example, heart disease. In heart disease they have told you never to make a heart diagnosis or present a prognosis on one call. People here, today, are conversant with other medical problems and fearful of other disease than heart disease. Before you have attained my age and experience you will see more lay medical agencies than you now can imagine. You will join them, too. I would say the same thing as did your professors but in somewhat different words — treat more damn-if-I-know — and you will be a better diagnostician, a better physician and a better citizen." (Phoenix, Arizona, 1929)

American men of medicine today with present scientific advances, joiners that we are, still do not promise cure. Medicine continues as the healing art.

On Saturday, November 24, 1956, at 2:30 P. M., in Tucson, Arizona, we attended a meeting of physicians representing the three states of Mexico: Sinaloa, Sonora, and Jalisco; and the State of Arizona; a meeting endorsed by the Governors of the states of Sinaloa, Sonora, Jalisco, and Arizona, and presided over by Harry Thompson, M.D., Arizona, U.S.A., and Hector Gonzalez Guevara, M.D., Mayor of Mazatlan, Republic of Mexico. The following physicians were in attendance, their official capacities are listed after their names:

Representatives from The Republic of Mexico  
 Dr. Hector Gonzalez Guevara, Mazatlan, Sinaloa, Co-Chairman, representing Dr. Rigoberto Aguillar P., Governor of Sinaloa.  
 Dr. Gaston Madrid, Hermosillo, Sonora, representing Dr. Alvaro Obregon, Governor of Sonora.  
 Dr. Guillermo Soberanes, Hermosillo, Sonora, representing Dr. Alvaro Obregon, Governor of Sonora.  
 Dr. Jose Ma. Licona, Hermosillo, Sonora, representing The Federation of Sonora Doctors  
 Dr. Javier Maldonado Avil, Navojia, Sonora.  
 Dr. Alberto L. Guevara, Zoquipan, Jalisco.

Dr. Jesus Martinez Ochoa, Nogales, Sonora.  
 Dr. Ernesto Rivera Magallon, Magdalena, Sonora.  
 Dr. Juan Jose Vasquez Romo, Hermosillo, Sonora.  
 Dr. Umberto Rosas, Navojia, Sonora.  
 Dr. Carlos Silva, Navojia, Sonora.  
 Mr. Alfredo Patron Rivas, Mazatlan, Sinaloa, in charge of arrangements.

Representatives from Arizona, United States of America  
 Harry Thompson, M.D., Tucson, Co-Chairman.  
 Norman A. Ross, M.D., Phoenix, representing Ernest W. McFarland, Governor of Arizona.  
 Frank W. Edel, M.D., Phoenix, President, Maricopa County Medical Society.  
 Joseph Madison Greer, M.D., Phoenix, representing the Arizona State Medical Society.  
 Charles Kalil, M.D., Phoenix, representing Maricopa County Medical Society.  
 Miguel A. Carreras, M.D., Tucson.  
 Manuel Soto Curiel, M.D., Tucson.  
 Robert Hastings, M.D., Tucson.  
 Leo Kent, M.D., Tucson.  
 Wilkins R. Manning, M.D., Tucson.  
 Salvador Rodriguez, M.D., Tucson.  
 William G. Shultz, M.D., Tucson.

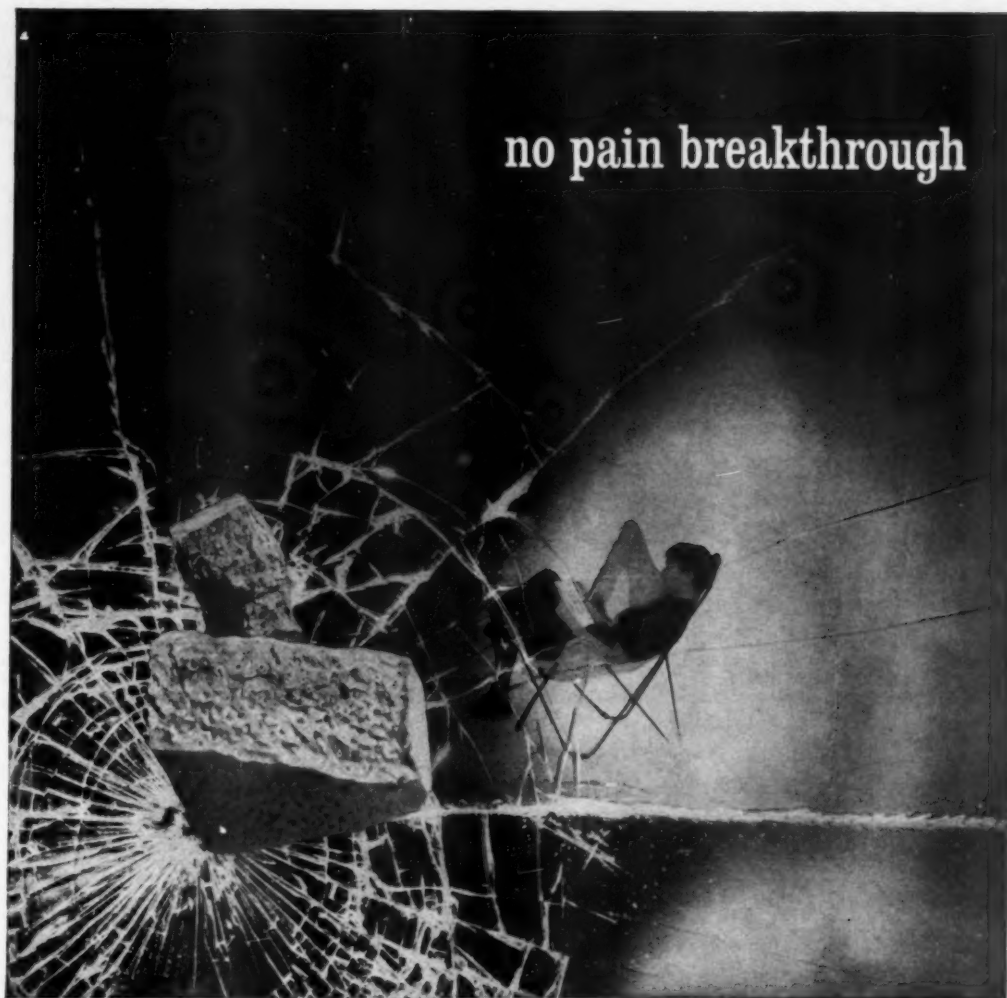
Here was something different, something refreshing after so much of local lay association meetings, medical societies, and staff meetings. Here we met members of our profession from what to us was another world, Old Mexico.

Coccidioidomycosis was the paper delivered by Dr. Alberto L. Guevara, Zoquipan, Jalisco, formerly a professor of medicine at the Northwestern University Medical School, Chicago, U.S.A. The good doctor discussed "coccy". He mentioned the fact that cases of coccidioidomycosis, Arizona's and California's private disease, were much too common in his state, that one case had been reported in Argentina, that the disease was being disseminated and is now found in other areas of the United States as well as other than desert areas in Mexico. We learned that what we had considered to be the Great American Desert stopping at our southern border, is on Mexico's maps the Sonora Desert which included our state and California, as well as several states of Mexico. These men consider coccidioidomycosis to belong to Arizona, California, and several states of Mexico. They don't cure "coccy" in the Republic of Mexico.

At breakfast the next morning we talked to my colleagues and to their wives, realizing for the first time the similarity, yet the difference in medicine in two worlds.

Hector Gonzalez Guevara, is Mayor of Mazatlan. Doctors in Mexico hold an exalted





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Hyosine Hydrobromide . . . . .	0.0195 mg. . . . .	0.0195 mg.
Phenobarbital . . . . .	48.6 mg. (¾ gr.) . . . . .	48.6 mg. (¾ gr.)



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position. Definitely the mayor of Mazatlan was a leader, capable of leading as smug an American as you would wish to produce. The mayor's lady conversed in English.

Is there, then, in these two great countries, practically one world of Medicine? Do we diagnose and treat illness the same? Do we practice the healing art with only language and customs dividing us? Was the difference a social one? This was a topic of discussion on our trip home.

There will be a society international, of this I am sure. Another organizational meeting will be in Hermosillo in March, 1957. The first regular meeting of the Society is set for the latter part of May, 1957, in Mazatlan.

Mazatlan in Mexico. A Mexican physician of remote Portuguese extraction, for a moment I felt myself an Arizona physician of Iowa extraction, told us this: "Mazatlan, Old Mexico — on an island here are to be found burro deer, so named because they resemble the burro but for a huge spread of antlers; fish — "theek" — in May you can hardly row a boat through them, the motor at times is started to nudging the larger ones aside."

Short five minute papers were suggested because of language difficulty and my new friends interposed that one might drink, or leave during portions of the discussion, time off to allow for interpretation. He offered that this could not be considered impolite.

Could our proposed organization develop into a world medical organization; or would it treat only with our immediate neighbors? This posed a question which America recognizes at least in part in licensure of physicians. Is medical training, clinical medicine, basically the same the world over?

Does medicine as the American practicing physician knows it today, differ only in its social and economic application? Should Arizona physicians now communicate with their colleagues, neighbors, to the South, in Sinaloa, Sonora, and Jalisco? Do we want an association with the Mexican physicians? Would such an association be profitable to our patients? Would it be pleasurable?

Ask patient, ask preceptor, ask professor if you wish, or take our advice and write Harry Thompson, and joiners — join us — "muy pronto."

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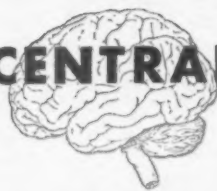
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### Prenatal X-rays Indicted As Possible Cause of Cancer in Children

A RECENT press release may soon be bringing many questions and comments from pregnant women to the physician who is caring for them. An English study carried out by Dr. Alice Stewart of Oxford University has indicated from preliminary analysis that prenatal x-ray may play an etiological role in the development of malignancy in children. This study was a survey of 1500 English children who died before the age of ten from leukemia or malignancy between 1953 and 1955. At the time of the preliminary press release, 547 fatalities had been analyzed. Of these 85 mothers had had diagnostic abdominal radiation during the relevant pregnancy.

One's comment is that this may be an interesting lead and worthy of investigation. Certainly her study to date is not conclusive and the apparent increase of incidence of malignancy during the relevant pregnancy as against a controlled group could be due to many things. It appears unwise to release preliminary information of this type to the lay press.

E.E.Y.

### The A.M.A. and American Legion Joint Committee

THE FINAL report of this Committee which was discharged in February of 1956 was sent to the A.M.A. and to the American Legion. The Committee on Federal Medical Services of the A.M.A. has studied the report and has issued a statement in which it indicates that it is the Committee's opinion that the A.M.A. and the American Legion should continue to cooperate in an effort to provide finest medical care for all segments of the American public, but has indicated that it has found no reason to suggest revision of the fundamental American Medical Association concept that it is contrary to the public interest to approve V.A. medical care for disability unrelated to military service. It has indicated that it feels, as a consequence of this, that those suggested areas of understanding which conflict with this position cannot be endorsed.

R. Lee Foster, M.D.

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